

**SI Units and Unit Conversion**

**MCHS Honors Physics 2013-14**

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**SI Units**

- The International System of Units, or SI, is the standard system of measurement used by many scientists.
- Using the same standards of measurement makes it easier for scientists to communicate with one another..
- SI works by combining prefixes and base units.
- Each base unit can be used with different prefixes to define smaller or larger quantities.

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**SI Units - Prefixes**

- The table below lists common SI prefixes.

Prefix	Abbreviation	Factor	Example
kilo-	k	1000	kilogram, 1 kg = 1,000 g
hecto-	h	100	hectoliter, 1 hL = 100 L
deka-	da	10	dekameter, 1 dam = 10 m
		1	meter, liter
deci-	da	0.1	decigram, 1 dg = 0.1 g
centi-	c	0.01	centimeter, 1 cm = 0.01 m
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## SI Units

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meter (m) = 100 cm	1 m = 3.281 ft	1 ft = 0.305 m
centimeter (cm) = 0.01 m	1 cm = 0.394 in.	1 in. = 2.540 cm
millimeter (mm) = 0.001 m	1 mm = 0.039 in.	
micrometer ( $\mu\text{m}$ ) = 0.000 001 m		
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As meter is defined as the distance travelled by light in a vacuum in  $1/299,792,458^{\text{th}}$  of a second.

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SI units	From SI to English	From English to SI
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hectare (ha) = 10,000 $\text{m}^2$	1 ha = 2.471 acres	1 acre = 0.405 ha
square meter ( $\text{m}^2$ ) = 10,000 $\text{cm}^2$	1 $\text{m}^2$ = 10.765 $\text{ft}^2$	1 $\text{ft}^2$ = 0.093 $\text{m}^2$
square centimeter ( $\text{cm}^2$ ) = 100 $\text{mm}^2$	1 $\text{cm}^2$ = 0.155 $\text{in.}^2$	1 $\text{in.}^2$ = 6.452 $\text{cm}^2$

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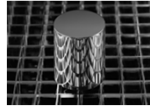
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## The Picket Fence Method

- The Picket Fence Method is used for converting numbers and units from one unit of measure (dimension) to another.
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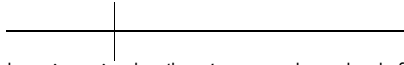
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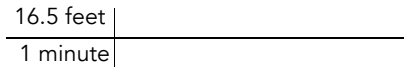
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### The Picket Fence Method

- Draw a horizontal line – the fence  
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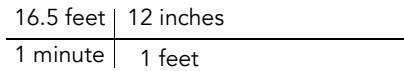
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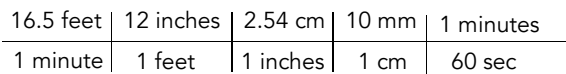
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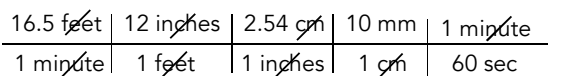
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- Multiply together all the numbers above the fence and write the result to the right of the fence.
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16.5 <del>feet</del>	12 <del>inches</del>	2.54 <del>cm</del>	10 mm	1 <del>minute</del>	
1 <del>minute</del>	1 <del>feet</del>	1 <del>inches</del>	1 <del>cm</del>	60 sec	

$16.5 * 12 * 2.54 * 10 = 5029.2 \text{ mm}$   
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- Divide the top number by the bottom number and keep the units in their correct places.

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$5029.2 \text{ mm} \div 60 \text{ sec} = 83.82 \text{ mm/sec}$

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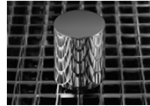
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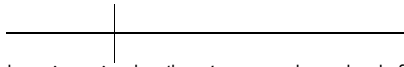
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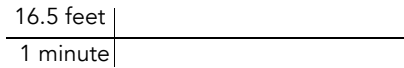


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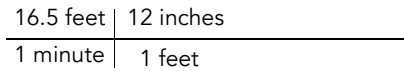
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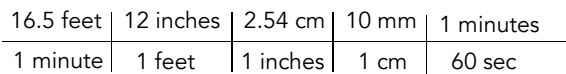
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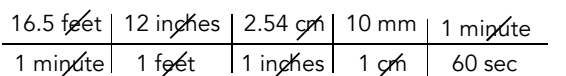
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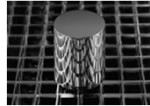
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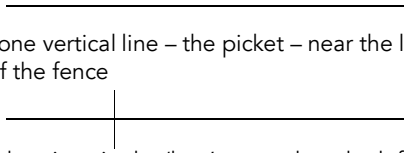
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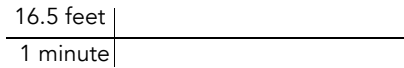
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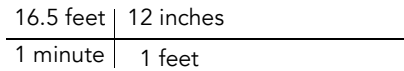
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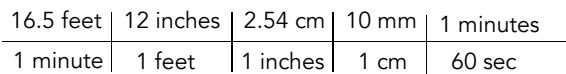
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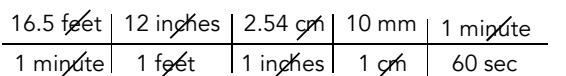
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$5029.2 \text{ mm} \div 60 \text{ sec} = 83.82 \text{ mm/sec}$

Google 16.5 feet/minute converted to mm/sec

16.5 (feet / minute) =  
83.82 mm / second

Google  
Agrees!

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**SI Units and Unit Conversion**

**MCHS Honors Physics 2013-14**

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**SI Units**

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- The table below lists common SI prefixes.

Prefix	Abbreviation	Factor	Example
kilo-	k	1000	kilogram, 1 kg = 1,000 g
hecto-	h	100	hectoliter, 1 hL = 100 L
deka-	da	10	dekameter, 1 dam = 10 m
		1	meter, liter
deci-	da	0.1	decigram, 1 dg = 0.1 g
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## SI Units

- The table below lists common SI unit conversions for length:

SI units	From SI to English	From English to SI
<b>Length</b>		
kilometer (km) = 1,000 m	1 km = 0.621 mi	1 mi = 1.609 km
meter (m) = 100 cm	1 m = 3.281 ft	1 ft = 0.305 m
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SI units	From SI to English	From English to SI
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hectare (ha) = 10,000 $\text{m}^2$	1 ha = 2.471 acres	1 acre = 0.405 ha
square meter ( $\text{m}^2$ ) = 10,000 $\text{cm}^2$	1 $\text{m}^2$ = 10.765 $\text{ft}^2$	1 $\text{ft}^2$ = 0.093 $\text{m}^2$
square centimeter ( $\text{cm}^2$ ) = 100 $\text{mm}^2$	1 $\text{cm}^2$ = 0.155 $\text{in.}^2$	1 $\text{in.}^2$ = 6.452 $\text{cm}^2$

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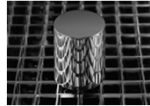
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Second (s) = 60 g		
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## The Picket Fence Method

- The Picket Fence Method is used for converting numbers and units from one unit of measure (dimension) to another.
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### The Picket Fence Method

- Draw a horizontal line – the fence  

$$\underline{\hspace{10em}}$$
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$$\begin{array}{l} \underline{\hspace{10em}} \\ | \\ \underline{\hspace{10em}} \end{array}$$

- Write the given in the 'box' created on the left-hand side

16.5 feet		
1 minute		

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### The Picket Fence Method

- Write a conversion factor in the next 'box'
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16.5 feet		12 inches
1 minute		1 foot

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### The Picket Fence Method

- Write another conversion factor in the next 'box' and draw another picket (if needed) – stop when the desired unit has been written on top of the fence

16.5 feet		12 inches		2.54 cm		10 mm		1 minutes
1 minute		1 feet		1 inches		1 cm		60 sec

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<del>16.5 feet</del>		<del>12 inches</del>		<del>2.54 cm</del>		10 mm		<del>1 minute</del>
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- Multiply together all the numbers above the fence and write the result to the right of the fence.
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$$16.5 * 12 * 2.54 * 10 = 5029.2 \text{ mm}$$
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- Divide the top number by the bottom number and keep the units in their correct places.

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**SI Units and Unit Conversion**

**MCHS Honors Physics 2013-14**

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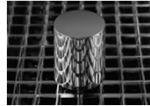
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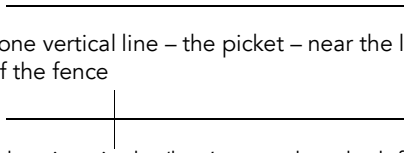
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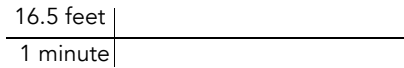
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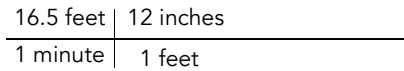
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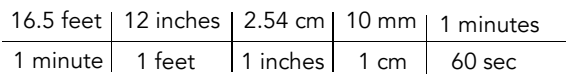
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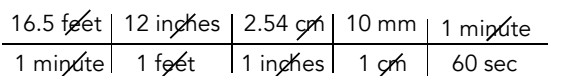
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**MCHS Honors Physics 2013-14**

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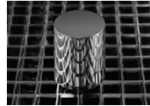
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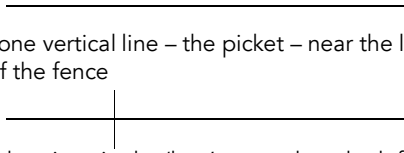
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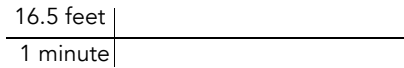
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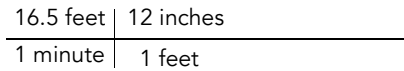
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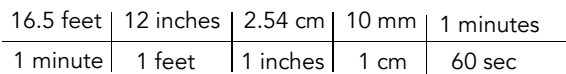
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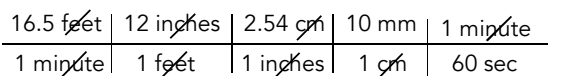
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Google 16.5 feet/minute converted to mm/sec

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**SI Units and Unit Conversion**

**MCHS Honors Physics 2013-14**

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**SI Units**

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		1	meter, liter
deci-	da	0.1	decigram, 1 dg = 0.1 g
centi-	c	0.01	centimeter, 1 cm = 0.01 m
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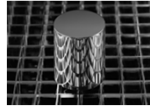


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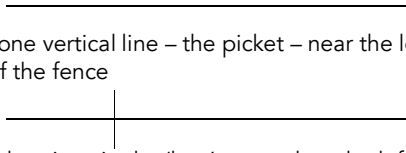
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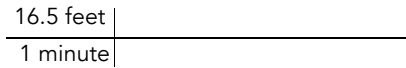
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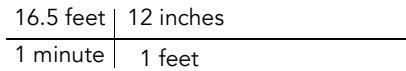
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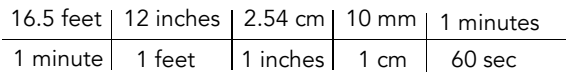
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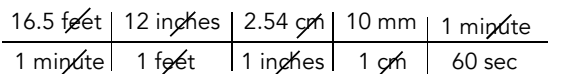
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16.5 <del>feet</del>	12 <del>inches</del>	2.54 <del>cm</del>	10 mm	1 <del>minute</del>
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**SI Units and Unit Conversion**

**MCHS Honors Physics 2013-14**

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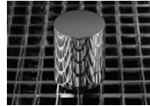
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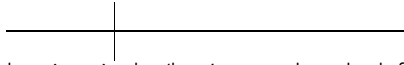
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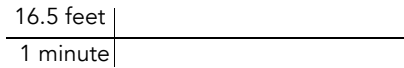
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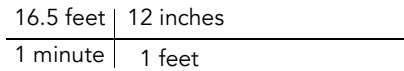
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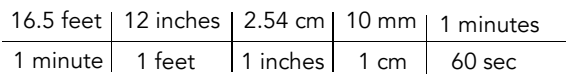
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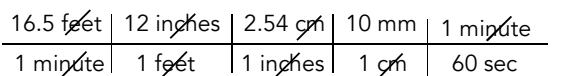
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**MCHS Honors Physics 2013-14**

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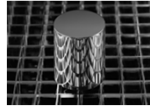
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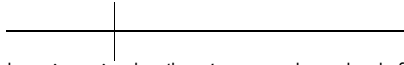
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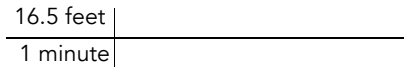
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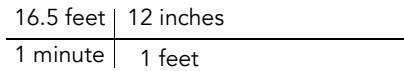
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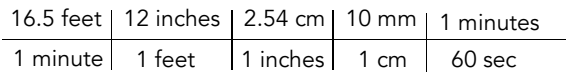
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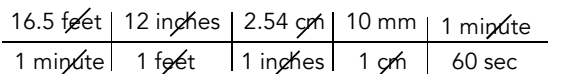
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 $1 * 1 * 1 * 1 * 60 = 60 \text{ sec}$

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- Divide the top number by the bottom number and keep the units in their correct places.

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$5029.2 \text{ mm} \div 60 \text{ sec} = 83.82 \text{ mm/sec}$

Google 16.5 feet/minute converted to mm/sec  
 16.5 (feet / minute) =  
**83.82 mm / second**




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**SI Units and Unit Conversion**

**MCHS Honors Physics 2013-14**

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**SI Units**

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		1	meter, liter
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hectare (ha) = 10,000 $\text{m}^2$	1 ha = 2.471 acres	1 acre = 0.405 ha
square meter ( $\text{m}^2$ ) = 10,000 $\text{cm}^2$	1 $\text{m}^2$ = 10.765 $\text{ft}^2$	1 $\text{ft}^2$ = 0.093 $\text{m}^2$
square centimeter ( $\text{cm}^2$ ) = 100 $\text{mm}^2$	1 $\text{cm}^2$ = 0.155 $\text{in.}^2$	1 $\text{in.}^2$ = 6.452 $\text{cm}^2$

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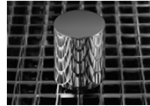
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## The Picket Fence Method

- The Picket Fence Method is used for converting numbers and units from one unit of measure (dimension) to another.
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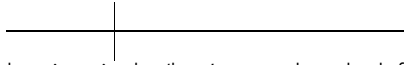
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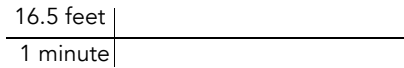


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- Draw a horizontal line – the fence  
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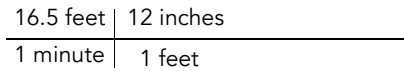
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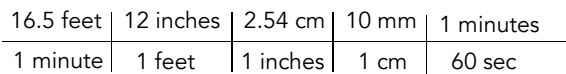
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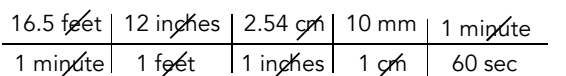
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- Multiply together all the numbers above the fence and write the result to the right of the fence.
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16.5 <del>feet</del>	12 <del>inches</del>	2.54 <del>cm</del>	10 mm	1 <del>minute</del>	
1 <del>minute</del>	1 <del>feet</del>	1 <del>inches</del>	1 <del>cm</del>	60 sec	

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Google  
Agrees!

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**SI Units and Unit Conversion**

**MCHS Honors Physics 2013-14**

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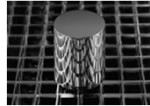
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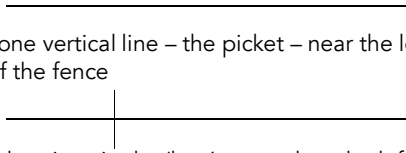
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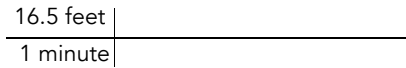
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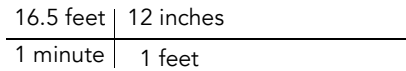
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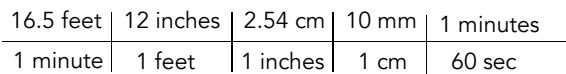
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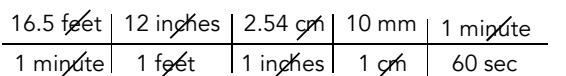
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**SI Units and Unit Conversion**

**MCHS Honors Physics 2013-14**

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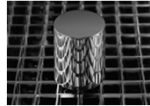
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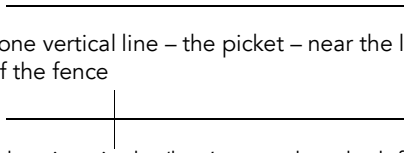
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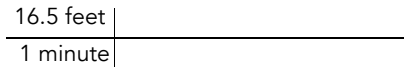
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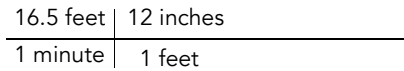
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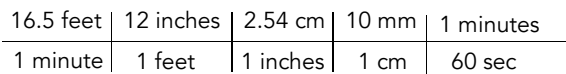
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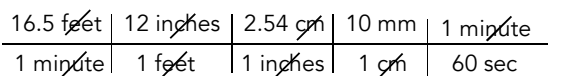
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16.5 <del>feet</del>	12 <del>inches</del>	2.54 <del>cm</del>	10 mm	1 <del>minute</del>	
1 <del>minute</del>	1 <del>feet</del>	1 <del>inches</del>	1 <del>cm</del>	60 sec	

$16.5 * 12 * 2.54 * 10 = 5029.2 \text{ mm}$

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**SI Units and Unit Conversion**

**MCHS Honors Physics 2013-14**

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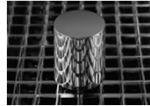
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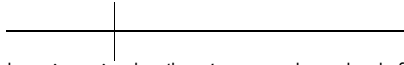
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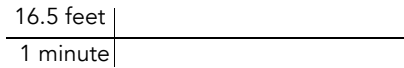
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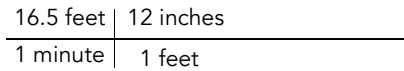
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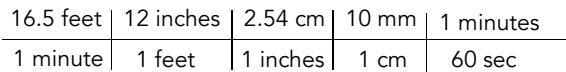
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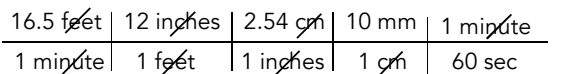
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**SI Units and Unit Conversion**

**MCHS Honors Physics 2013-14**

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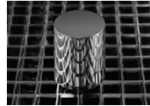
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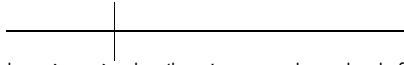
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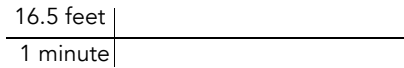
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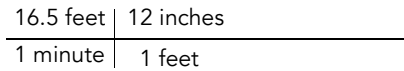
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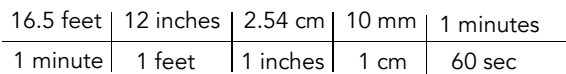
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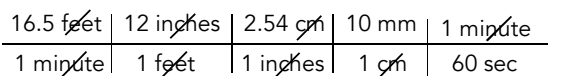
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**SI Units and Unit Conversion**

**MCHS Honors Physics 2013-14**

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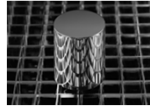


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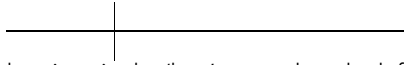
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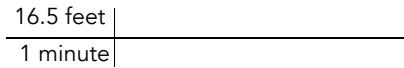
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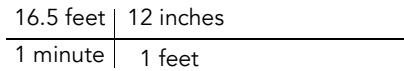
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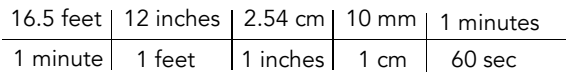
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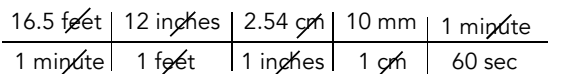
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- Multiply together all the numbers above the fence and write the result to the right of the fence.
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16.5 <del>feet</del>	12 <del>inches</del>	2.54 <del>cm</del>	10 mm	1 <del>minute</del>	
1 <del>minute</del>	1 <del>feet</del>	1 <del>inches</del>	1 <del>cm</del>	60 sec	

$16.5 * 12 * 2.54 * 10 = 5029.2 \text{ mm}$

$1 * 1 * 1 * 1 * 60 = 60 \text{ sec}$

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- Divide the top number by the bottom number and keep the units in their correct places.

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**SI Units and Unit Conversion**

**MCHS Honors Physics 2013-14**

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Prefix	Abbreviation	Factor	Example
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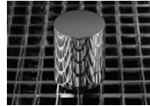
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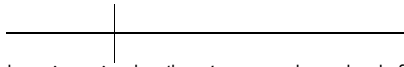
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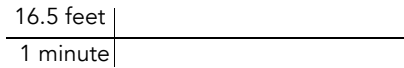
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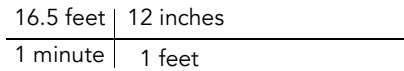
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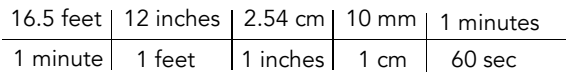
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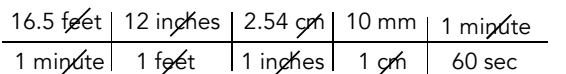
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**SI Units and Unit Conversion**

**MCHS Honors Physics 2013-14**

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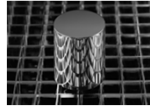
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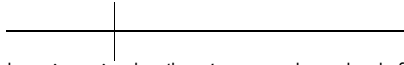
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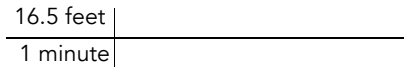
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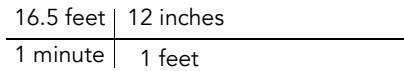
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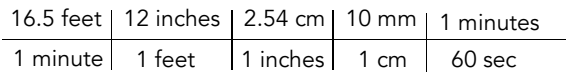
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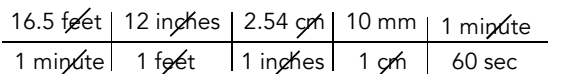
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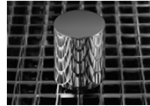
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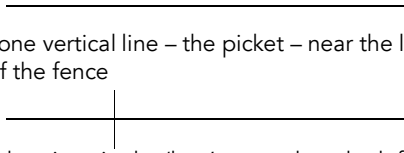
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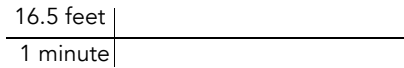


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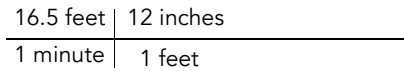
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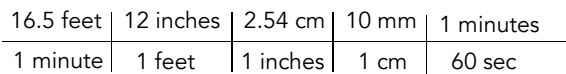
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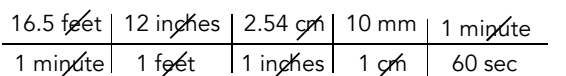
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- Multiply together all the numbers above the fence and write the result to the right of the fence.
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16.5 <del>feet</del>	12 <del>inches</del>	2.54 <del>cm</del>	10 mm	1 <del>minute</del>	
1 <del>minute</del>	1 <del>feet</del>	1 <del>inches</del>	1 <del>cm</del>	60 sec	

$16.5 * 12 * 2.54 * 10 = 5029.2 \text{ mm}$

$1 * 1 * 1 * 1 * 60 = 60 \text{ sec}$

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**SI Units and Unit Conversion**

**MCHS Honors Physics 2013-14**

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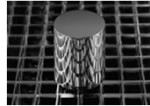
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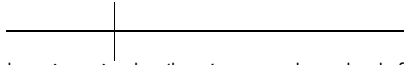
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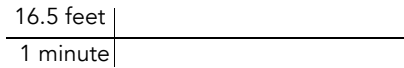
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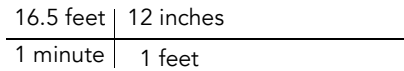
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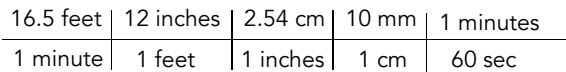
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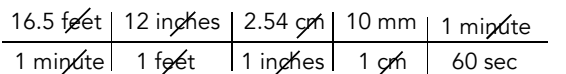
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**SI Units and Unit Conversion**

**MCHS Honors Physics 2013-14**

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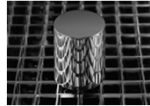
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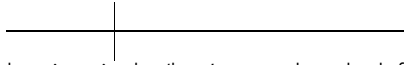
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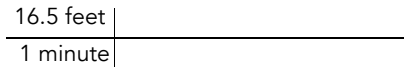
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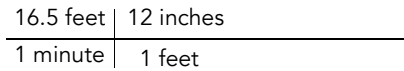
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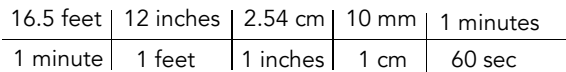
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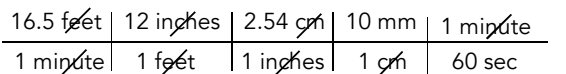
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**MCHS Honors Physics 2013-14**

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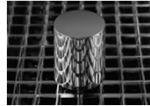
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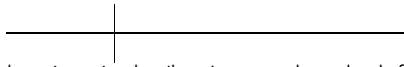
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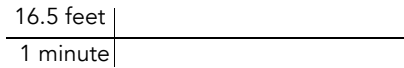
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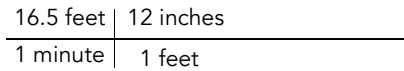
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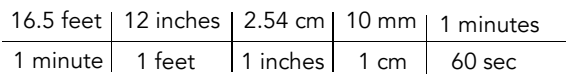
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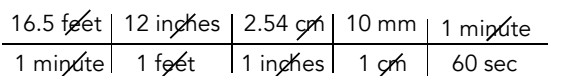
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### The Picket Fence Method

- Multiply together all the numbers above the fence and write the result to the right of the fence.
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16.5 <del>feet</del>	12 <del>inches</del>	2.54 <del>cm</del>	10 mm	1 <del>minute</del>	
1 <del>minute</del>	1 <del>feet</del>	1 <del>inches</del>	1 <del>cm</del>	60 sec	

$16.5 * 12 * 2.54 * 10 = 5029.2 \text{ mm}$

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- Divide the top number by the bottom number and keep the units in their correct places.

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**SI Units and Unit Conversion**

**MCHS Honors Physics 2013-14**

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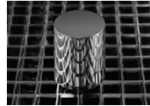
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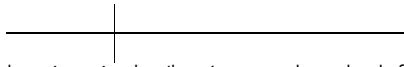
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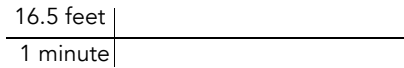
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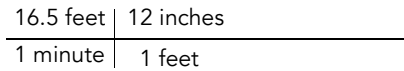
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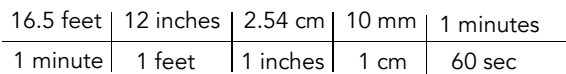
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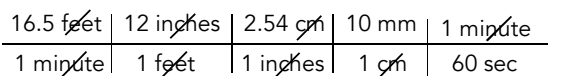
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Agrees!

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**SI Units and Unit Conversion**

**MCHS Honors Physics 2013-14**

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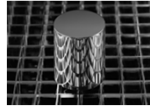


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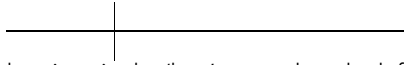
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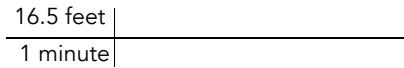
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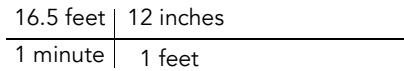
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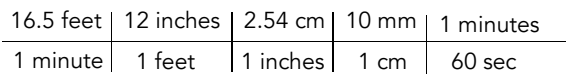
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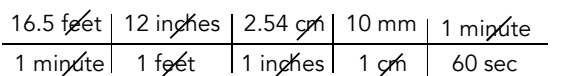
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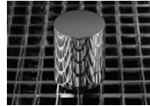
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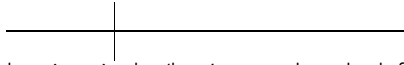
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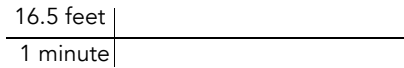
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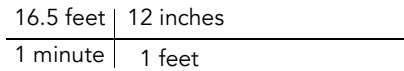
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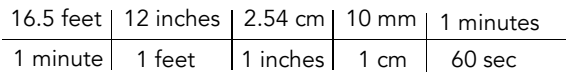
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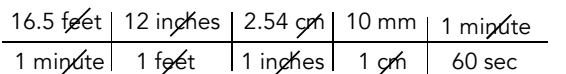
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- Multiply together all the numbers above the fence and write the result to the right of the fence.
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16.5 <del>feet</del>	12 <del>inches</del>	2.54 <del>cm</del>	10 mm	1 <del>minute</del>	
1 <del>minute</del>	1 <del>feet</del>	1 <del>inches</del>	1 <del>cm</del>	60 sec	

$16.5 * 12 * 2.54 * 10 = 5029.2 \text{ mm}$

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- Divide the top number by the bottom number and keep the units in their correct places.

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**SI Units and Unit Conversion**

**MCHS Honors Physics 2013-14**

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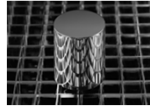
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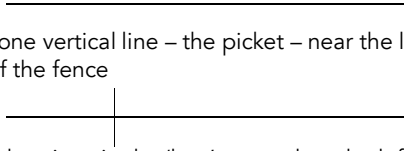
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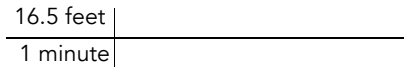
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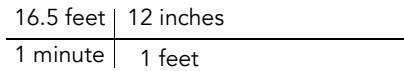
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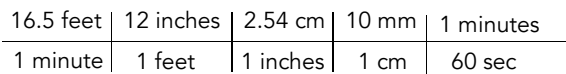
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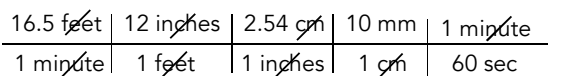
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**MCHS Honors Physics 2013-14**

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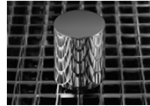
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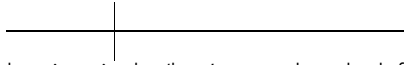
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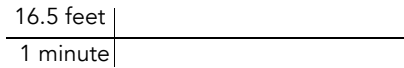


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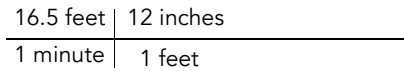
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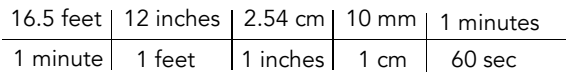
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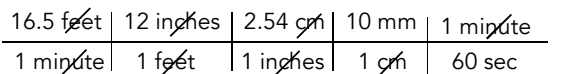
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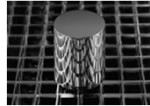
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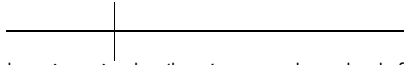
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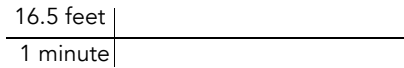
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- Write the given in the 'box' created on the left-hand side




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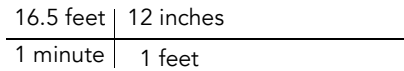
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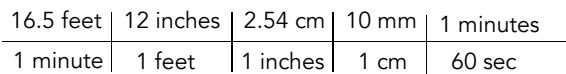
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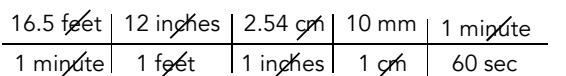
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- Write another conversion factor in the next 'box' and draw another picket (if needed) – stop when the desired unit has been written on top of the fence



- Cancel all units that are the same on the top and the bottom




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### The Picket Fence Method

- Multiply together all the numbers above the fence and write the result to the right of the fence.
- Multiply all the numbers below the fence and also write that number to the right of the fence.

16.5 <del>feet</del>	12 <del>inches</del>	2.54 <del>cm</del>	10 mm	1 <del>minute</del>	
1 <del>minute</del>	1 <del>feet</del>	1 <del>inches</del>	1 <del>cm</del>	60 sec	

$16.5 * 12 * 2.54 * 10 = 5029.2 \text{ mm}$

$1 * 1 * 1 * 1 * 60 = 60 \text{ sec}$

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### The Picket Fence Method

- Divide the top number by the bottom number and keep the units in their correct places.

16.5 <del>feet</del>	12 <del>inches</del>	2.54 <del>cm</del>	10 mm	1 <del>minute</del>	5029.2 mm
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$5029.2 \text{ mm} \div 60 \text{ sec} = 83.82 \text{ mm/sec}$

Google 16.5 feet/minute converted to mm/sec  
16.5 (feet / minute) =  
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**SI Units and Unit Conversion**

**MCHS Honors Physics 2013-14**

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**SI Units**

- The International System of Units, or SI, is the standard system of measurement used by many scientists.
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**SI Units - Prefixes**

- The table below lists common SI prefixes.

Prefix	Abbreviation	Factor	Example
kilo-	k	1000	kilogram, 1 kg = 1,000 g
hecto-	h	100	hectoliter, 1 hL = 100 L
deka-	da	10	dekameter, 1 dam = 10 m
		1	meter, liter
deci-	da	0.1	decigram, 1 dg = 0.1 g
centi-	c	0.01	centimeter, 1 cm = 0.01 m
milli-	m	0.001	milliliter, 1 mL = 0.001 L
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## SI Units

- The table below lists common SI unit conversions for length:

SI units	From SI to English	From English to SI
<b>Length</b>		
kilometer (km) = 1,000 m	1 km = 0.621 mi	1 mi = 1.609 km
meter (m) = 100 cm	1 m = 3.281 ft	1 ft = 0.305 m
centimeter (cm) = 0.01 m	1 cm = 0.394 in.	1 in. = 2.540 cm
millimeter (mm) = 0.001 m	1 mm = 0.039 in.	
micrometer ( $\mu\text{m}$ ) = 0.000 001 m		
nanometer (nm) = 0.000 000 001 m		

As meter is defined as the distance travelled by light in a vacuum in  $1/299,792,458^{\text{th}}$  of a second.

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## SI Units

- The table below lists common SI unit conversions for area:

SI units	From SI to English	From English to SI
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sq. kilometer ( $\text{km}^2$ ) = 100 hectares	1 $\text{km}^2$ = 0.386 $\text{mi}^2$	1 $\text{mi}^2$ = 2.590 $\text{km}^2$
hectare (ha) = 10,000 $\text{m}^2$	1 ha = 2.471 acres	1 acre = 0.405 ha
square meter ( $\text{m}^2$ ) = 10,000 $\text{cm}^2$	1 $\text{m}^2$ = 10.765 $\text{ft}^2$	1 $\text{ft}^2$ = 0.093 $\text{m}^2$
square centimeter ( $\text{cm}^2$ ) = 100 $\text{mm}^2$	1 $\text{cm}^2$ = 0.155 $\text{in.}^2$	1 $\text{in.}^2$ = 6.452 $\text{cm}^2$

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## SI Units

- The table below lists common SI unit conversions for volume:

SI units	From SI to English	From English to SI
<b>Volume</b>		
liter (L) = 1,000 mL = 1 $\text{dm}^3$	1 L = 1.057 fl qt	1 fl qt = 0.946 L
milliliter (mL) = 0.001 L = 1 $\text{cm}^3$	1 mL = 0.034 fl oz	1 fl oz = 29.575 mL
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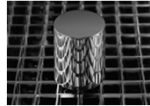
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- The table below lists common SI unit conversions for mass:

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## SI Units

- The table below lists common SI unit conversions for time:

SI units	From SI to English	From English to SI
<b>Time</b>		
Second (s) = 60 g		
Minute (min) = 60 sec		
Hour (hr) = 3600 sec		

A second is defined as the duration of 9,192,631,770 periods of radiation transitioning between the two hyperfine levels of the ground state of the caesium 133 atom.



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## The Picket Fence Method

- The Picket Fence Method is used for converting numbers and units from one unit of measure (dimension) to another.
- The "Picket-Fence" Method is also used for converting from metric to English or vice-versa and for changing any units into the correct S.I. unit.



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### The Picket Fence Method

- Draw a horizontal line – the fence  

$$\underline{\hspace{10em}}$$
- Draw one vertical line – the picket – near the left-hand side of the fence  

$$\begin{array}{l} \underline{\hspace{10em}} \\ | \\ \underline{\hspace{10em}} \end{array}$$

- Write the given in the 'box' created on the left-hand side

16.5 feet	
1 minute	

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### The Picket Fence Method

- Write a conversion factor in the next 'box'
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  - » Remember that the word "per" in the phrase "12 inches per 1 foot" means that the "12 inches" goes above the "1 foot" on the picket fence.

16.5 feet	12 inches
1 minute	1 foot

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### The Picket Fence Method

- Write another conversion factor in the next 'box' and draw another picket (if needed) – stop when the desired unit has been written on top of the fence

16.5 feet	12 inches	2.54 cm	10 mm	1 minutes
1 minute	1 feet	1 inches	1 cm	60 sec

- Cancel all units that are the same on the top and the bottom

<del>16.5 feet</del>	<del>12 inches</del>	<del>2.54 cm</del>	10 mm	<del>1 minute</del>
1 minute	<del>1 feet</del>	<del>1 inches</del>	<del>1 cm</del>	60 sec

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- Divide the top number by the bottom number and keep the units in their correct places.

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Google 16.5 feet/minute converted to mm/sec

16.5 (feet / minute) =  
83.82 mm / second

Google  
Agrees!

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**SI Units and Unit Conversion**

**MCHS Honors Physics 2013-14**

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## SI Units

- The table below lists common SI unit conversions for length:

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square meter ( $\text{m}^2$ ) = 10,000 $\text{cm}^2$	1 $\text{m}^2$ = 10.765 $\text{ft}^2$	1 $\text{ft}^2$ = 0.093 $\text{m}^2$
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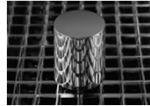
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SI units	From SI to English	From English to SI
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## The Picket Fence Method

- The Picket Fence Method is used for converting numbers and units from one unit of measure (dimension) to another.
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### The Picket Fence Method

- Draw a horizontal line – the fence  

$$\underline{\hspace{4cm}}$$
- Draw one vertical line – the picket – near the left-hand side of the fence  

$$\begin{array}{c} | \\ \hline \end{array}$$

- Write the given in the 'box' created on the left-hand side

16.5 feet	
1 minute	

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**SI Units and Unit Conversion**

**MCHS Honors Physics 2013-14**

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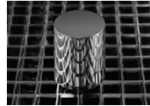
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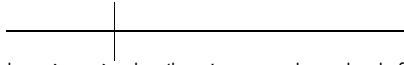
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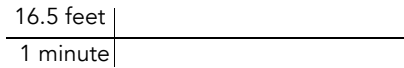
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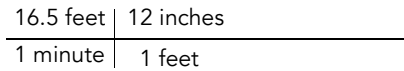
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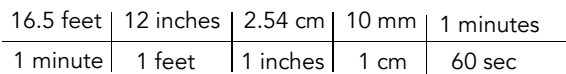
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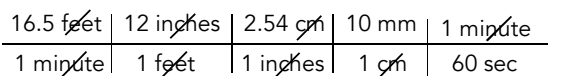
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### The Picket Fence Method

- Write another conversion factor in the next 'box' and draw another picket (if needed) – stop when the desired unit has been written on top of the fence



- Cancel all units that are the same on the top and the bottom




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### The Picket Fence Method

- Multiply together all the numbers above the fence and write the result to the right of the fence.
- Multiply all the numbers below the fence and also write that number to the right of the fence.

16.5 <del>feet</del>	12 <del>inches</del>	2.54 <del>cm</del>	10 mm	1 <del>minute</del>	
1 <del>minute</del>	1 <del>feet</del>	1 <del>inches</del>	1 <del>cm</del>	60 sec	

$16.5 * 12 * 2.54 * 10 = 5029.2 \text{ mm}$

$1 * 1 * 1 * 1 * 60 = 60 \text{ sec}$

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### The Picket Fence Method

- Divide the top number by the bottom number and keep the units in their correct places.

16.5 <del>feet</del>	12 <del>inches</del>	2.54 <del>cm</del>	10 mm	1 <del>minute</del>	5029.2 mm
1 <del>minute</del>	1 <del>feet</del>	1 <del>inches</del>	1 <del>cm</del>	60 sec	60 sec

$5029.2 \text{ mm} \div 60 \text{ sec} = 83.82 \text{ mm/sec}$

Google 16.5 feet/minute converted to mm/sec

16.5 (feet / minute) =  
83.82 mm / second

Google  
Agrees!

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