

# 7.8

## Work Problems

## Work Formula

$$\text{Work Rate} \times \text{Time} = \text{Work Done}$$



The fraction of the job done in a given unit of time

### Example

Theresa can paint a room in 4 hours. Her work rate is the part of the job she can do in 1 hour. What is her work rate?

### Example 1

One printing press can finish a job in 8 hours. The same job would take a second press 12 hours. How would it take both presses together?

	<i>Work Rate X Time = Work Done</i>		
1 <sup>st</sup> Press			
2 <sup>nd</sup> Press			

$$\boxed{\begin{array}{l} \text{1<sup>st</sup> Press} \\ \text{Part of Job} \end{array}} + \boxed{\begin{array}{l} \text{2<sup>nd</sup> Press} \\ \text{Part of Job} \end{array}} = \boxed{\begin{array}{l} \text{Whole} \\ \text{Job} \end{array}}$$

### Example 2

An installer can carpet a room in 3 hours. An assistant takes a 4½ hours to do the same job. If the assistant helps for 1 hour and then is called away, how long will it take the installer to finish?

	<i>Work Rate X Time = Work Done</i>		
Installer			
Assistant			

$$\boxed{\begin{array}{l} \text{Installer's} \\ \text{Part of Job} \end{array}} + \boxed{\begin{array}{l} \text{Assistant's} \\ \text{Part of Job} \end{array}} = \boxed{\begin{array}{l} \text{Whole} \\ \text{Job} \end{array}}$$

### Example 3

Josh can split a cord of wood in 4 days. His father can split a cord in 2 days. How long will it take them to split a cord of wood if they work together?

	<i>Work Rate X Time = Work Done</i>		
Josh			
Father			

$$\boxed{\text{Josh's Part of Job}} + \boxed{\text{Father's Part of Job}} = \boxed{\text{Whole Job}}$$

### Example 4

Robot A takes 6 minutes to weld a fender. Robot B takes only 5 ½ minutes. If they work together for 2 minutes, how long will it take Robot B to finish welding the fender by itself?

	<i>Work Rate X Time = Work Done</i>		
Robot A			
Robot B			

$$\boxed{\text{Robot A's Part of Job}} + \boxed{\text{Robot B's Part of Job}} = \boxed{\text{Whole Job}}$$