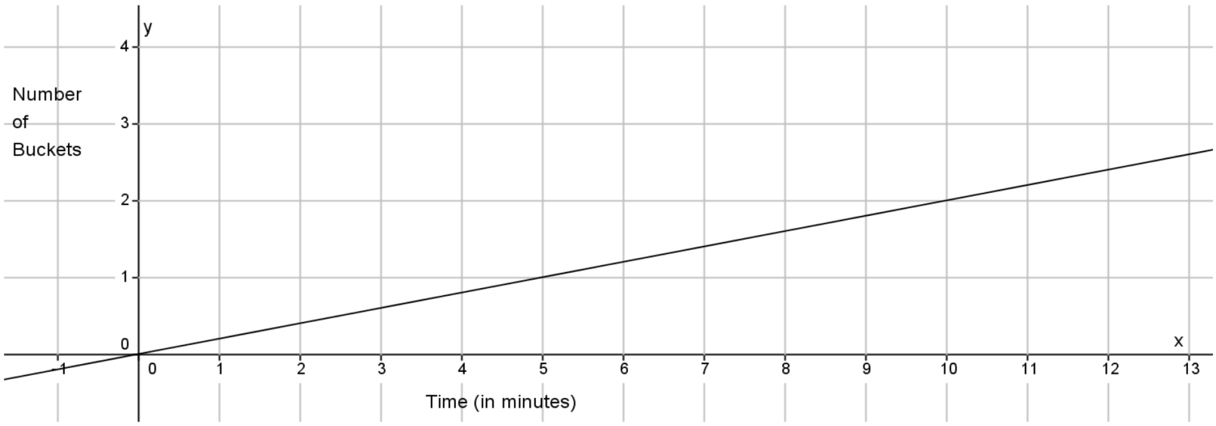
Name ____ Date ____________________

Constant Rates Revisited

1. Water flows out of Pipe A at a constant rate. Pipe A can fill 3 buckets of the same size in 14 minutes. Write a linear equation that represents the situation.

2. The figure below represents the rate at which Pipe B can fill the same sized buckets.

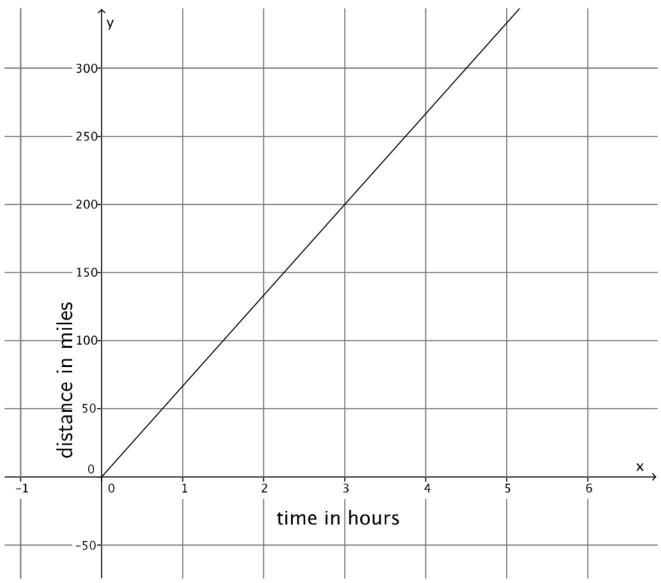


Which pipe fills buckets faster? Explain.

1.

a. Train A can travel a distance of 500 miles in 8 hours. Assuming the train travels at a constant rate, write the linear equation that represents the situation.

b. The figure represents the constant rate of travel for Train B.



Which train is faster? Explain.

2.

a. Natalie can paint 40 square feet in 9 minutes. Assuming she paints at a constant rate, write the linear equation that represents the situation.

b. The table of values below represents the area painted by Steven for a few selected time intervals. Assume Steven is painting at a constant rate.

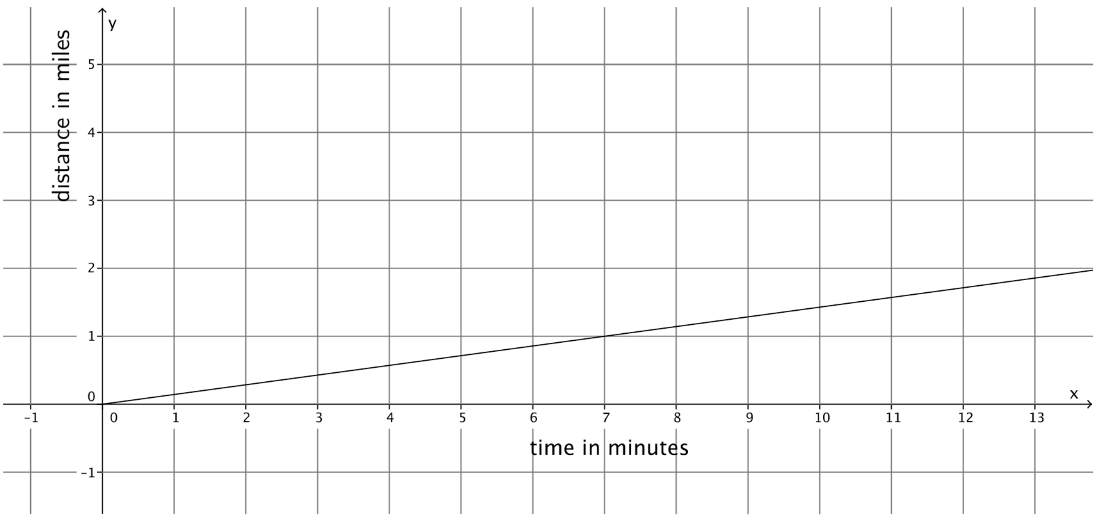
Minutes (x)	Area Painted (y)
3	10
5	$\frac{50}{3}$
6	20
8	$\frac{80}{3}$

Who paints faster? Explain.

3.

a. Bianca can run 5 miles in 41 minutes. Assuming she runs at a constant rate, write the linear equation that represents the situation.

b. The figure below represents Cynthia's constant rate of running.



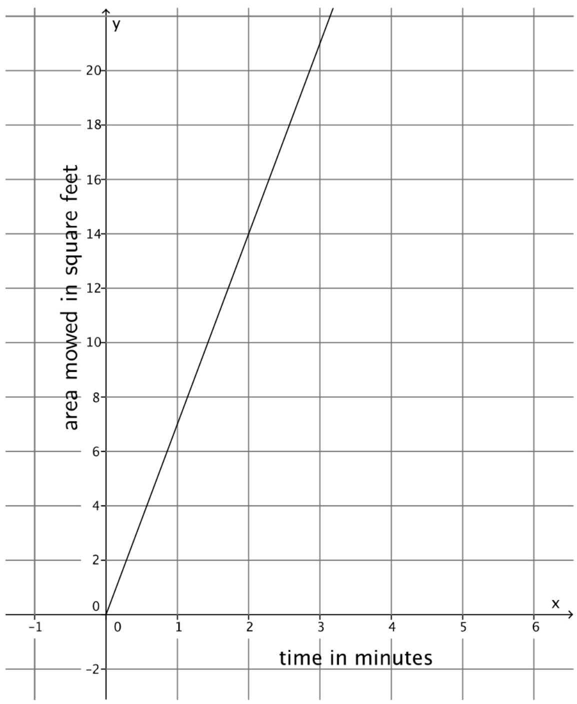
Who runs faster? Explain.

4.

a. Geoff can mow an entire lawn of 450 square feet in 30 minutes. Assuming he mows at a constant rate, write the linear equation that represents the situation.

b. The figure represents Mark's constant rate of mowing a lawn.

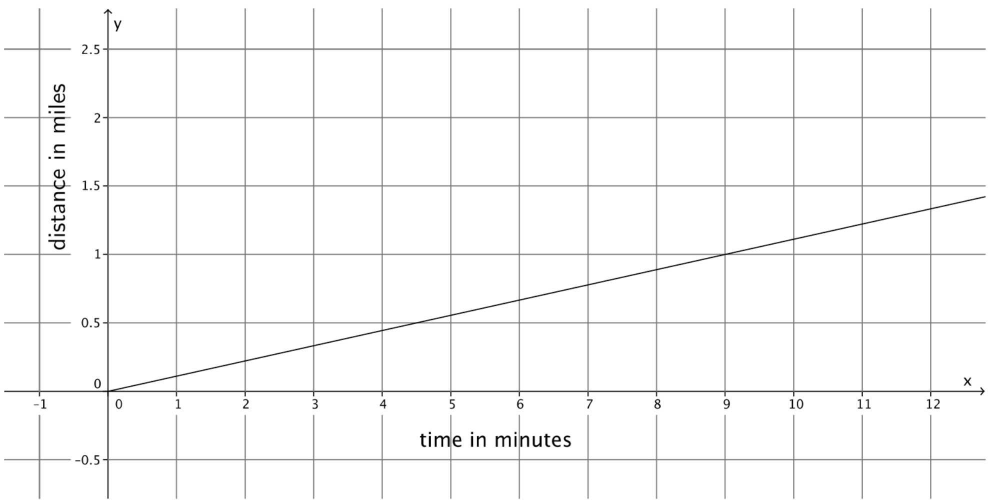
Who mows faster? Explain.



5.

a. Juan can walk to school, a distance of 0.75 miles, in 8 minutes. Assuming he walks at a constant rate, write the linear equation that represents the situation.

b. The figure below represents Lena's constant rate of walking.

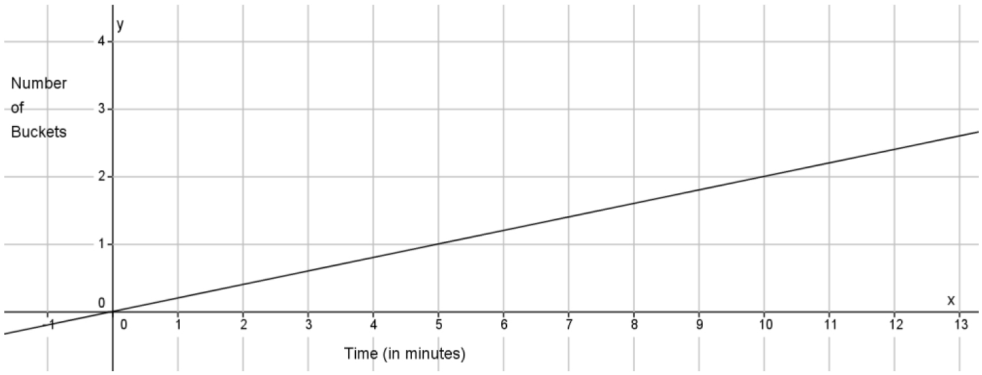


Who walks faster? Explain.

1. **Water flows out of Pipe A at a constant rate. Pipe A can fill 3 buckets of the same size in 14 minutes. Write a linear equation that represents the situation.**

Let y represent the total number of buckets that Pipe A can fill in x minutes. We can write $\frac{y}{x} = \frac{3}{14}$ *and* $y = \frac{3}{14}x$.

2. **The figure below represents the rate at which Pipe B can fill the same sized buckets.**



Which pipe fills buckets faster? Explain.

Pipe A fills the same sized buckets faster than Pipe B. The slope of the graph for Pipe B is $\frac{1}{5}$, *the slope or rate for Pipe A is* $\frac{3}{14}$. *When you compare the slopes, you see that* $\frac{3}{14} > \frac{1}{5}$.

Students practice writing constant rate problems as linear equations in two variables. Students determine which of two proportional relationships is greater.

1.

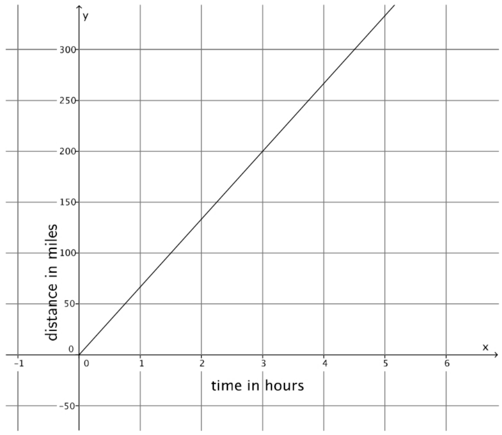
a. **Train A can travel a distance of 500 miles in 8 hours. Assuming the train travels at a constant rate, write the linear equation that represents the situation.**

Let y represent the total number of miles Train A travels in x minutes. We can write $\frac{y}{x} = \frac{500}{8}$ *and* $y = \frac{125}{2}x$.

b. **The figure represents the constant rate of travel for Train B.**

Which train is faster? Explain.

Train B is faster than Train A. The slope or rate for Train A is $\frac{125}{2}$*, and the slope of the line for Train B is* $\frac{200}{3}$*. When you compare the slopes, you see that t* $\frac{200}{3} > \frac{125}{2}$*.*



2.

a. **Natalie can paint 40 square feet in 9 minutes. Assuming she paints at a constant rate, write the linear equation that represents the situation.**

Let y represent the total square feet Natalie can paint in x minutes. We can write $\frac{y}{x} = \frac{40}{9}$*, and* $y = \frac{40}{9}x$*.*

b. **The table of values below represents the area painted by Steven for a few selected time intervals. Assume Steven is painting at a constant rate.**

Minutes (x)	Area Painted (y)
3	10
5	$\frac{50}{3}$
6	20
8	$\frac{80}{3}$

Who paints faster? Explain.

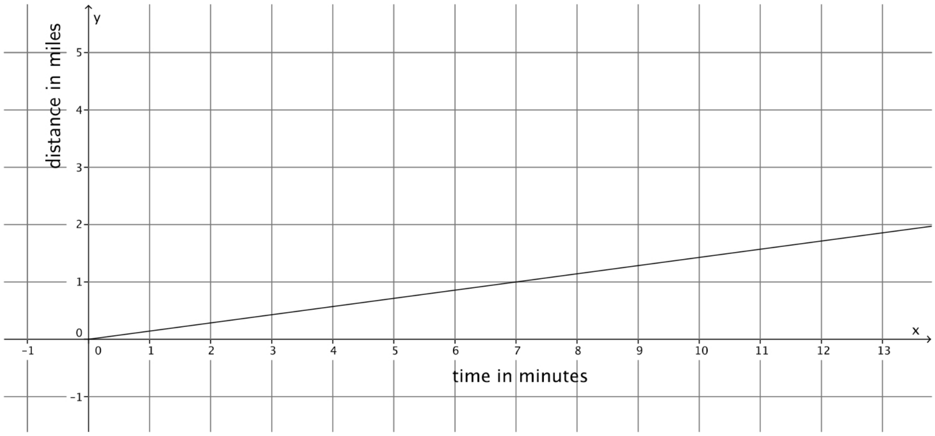
Natalie paints faster. Using the table of values, I can find the slope that represents Steven's constant rate of painting: $\frac{10}{3}$*. The slope or rate for Natalie is* $\frac{40}{9}$*. When you compare the slopes, you see that* $\frac{40}{9} > \frac{10}{3}$*.*

3.

a. **Bianca can run 5 miles in 41 minutes. Assuming she runs at a constant rate, write the linear equation that represents the situation.**

Let y represent the total number of miles Bianca can run in x minutes. We can write $\frac{y}{x} = \frac{5}{41}$*, and* $y = \frac{5}{41}x$*.*

b. **The figure below represents Cynthia's constant rate of running.**



Who runs faster? Explain.

Cynthia runs faster. The slope of the graph for Cynthia is $\frac{1}{7}$*, and the slope or rate for Nicole is* $\frac{5}{41}$*. When you compare the slopes, you see that* $\frac{1}{7} > \frac{5}{41}$*.*

4.

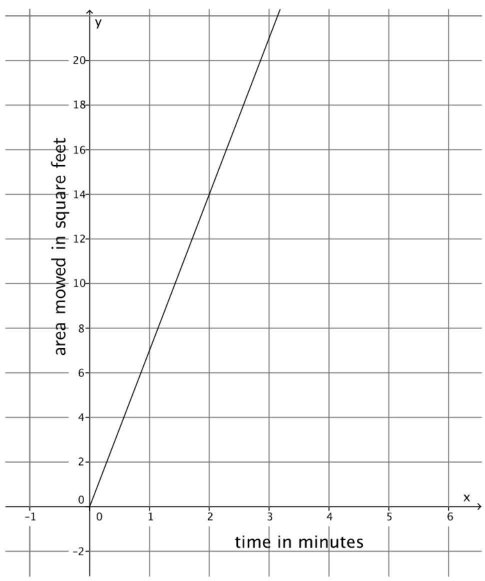
a. **Geoff can mow an entire lawn of 450 square feet in 30 minutes. Assuming he mows at a constant rate, write the linear equation that represents the situation.**

Let y *represent the total number of square feet Geoff can mow in* x *minutes. We can write* $\frac{y}{x} = \frac{450}{30}$*, and* $y = 15x$*.*

b. **The figure represents Mark's constant rate of mowing a lawn.**

Who mows faster? Explain.

Geoff mows faster. The slope of the graph for Mark is $\frac{14}{2} = 7$*, and the slope or rate for Geoff is* $\frac{450}{30} = 15$*. When you compare the slopes, you see that* $15 > 7$*.*

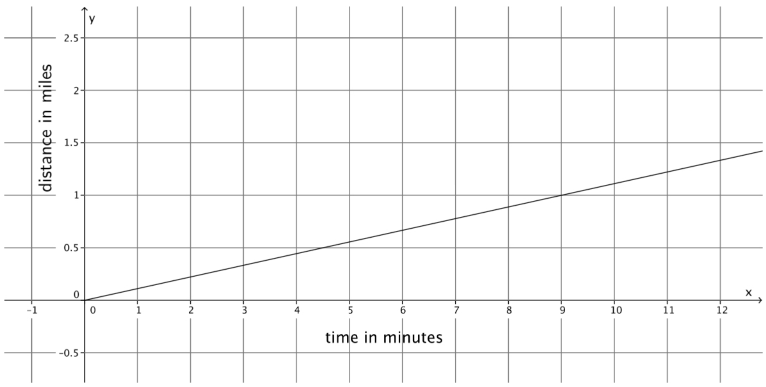


5.

a. **Juan can walk to school, a distance of 0.75 miles, in 8 minutes. Assuming he walks at a constant rate, write the linear equation that represents the situation.**

Let y represent the total distance in miles that Juan can walk in x minutes. We can write $\frac{y}{x} = \frac{0.75}{8}$, and $y = \frac{3}{32}x$.

b. **The figure below represents Lena's constant rate of walking.**



Who walks faster? Explain.

Lena walks faster. The slope of the graph for Lena is $\frac{1}{9}$, and the slope of the equation for Juan is $\frac{0.75}{8}$, or $\frac{3}{32}$. When you compare the slopes, you see that $\frac{1}{9} > \frac{3}{32}$.