

Class Name : (T) PERIOD 4 - MATH 7

Instructor Name : Mr. Trodick

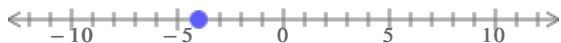
Student Name : \_\_\_\_\_

Instructor Note :

1. For each scenario, choose the best statement.

Scenarios	Statements
(a) The price of a stock increases by \$12 and then decreases by \$12.	<input type="radio"/> The stock's price is higher than it started. <input type="radio"/> The stock's price is lower than it started. <input type="radio"/> The overall change in the stock's price is \$0.
(b) A boxer loses 2 pounds and then gains 6 pounds.	<input type="radio"/> The boxer is above her starting weight. <input type="radio"/> The boxer is below her starting weight. <input type="radio"/> The boxer is at her starting weight.
(c) A hot air balloon goes down 30 feet and then up 25 feet.	<input type="radio"/> The balloon is above its initial height. <input type="radio"/> The balloon is below its initial height. <input type="radio"/> The balloon is 0 feet from its initial height.

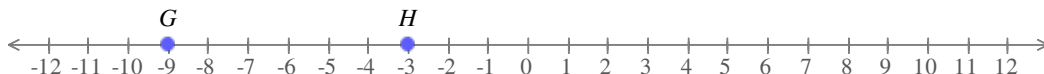
2. The number  $-4$  is plotted on the number line below.



Answer the following questions.

(a) Which is a point 8 units to the right of $-4$ ?				
<input type="radio"/> $-4 + 8$	<input type="radio"/> $-4 + (-8)$	<input type="radio"/> $4 + 8$	<input type="radio"/> $4 + (-8)$	
(b) Which is a point 8 units to the left of $-4$ ?				
<input type="radio"/> $-4 + 8$	<input type="radio"/> $-4 + (-8)$	<input type="radio"/> $4 + 8$	<input type="radio"/> $4 + (-8)$	

3. Find the distance between  $G$  and  $H$  on the number line below.



Distance: \_\_\_\_

4. Maya is riding in a bike race that goes through a valley and a nearby mountain range.

The table gives the altitude (in feet above sea level) for the five checkpoints in the race. Use the table to answer the questions.

Checkpoint	Altitude (feet above sea level)
1	2,824
2	-48
3	-101
4	1,109
5	-176

(a) The top of a hill rises 70 feet above Checkpoint 5.

What is the altitude of the top of the hill?

ft

(b) How much higher is Checkpoint 1 than Checkpoint 2?

ft higher

5. Add.

$$3 + (-5) =$$

$$-4 + (-5) =$$

6. Subtract.

$$-3 - 3 =$$

$$3 - 6 =$$

7. Subtract.

$$-7 - (-5) =$$

$$7 - (-5) =$$

8. Subtract.

$$\frac{1}{2} - \frac{5}{9}$$

Write your answer in simplest form.

9. Compute.

$$27.5 + (-2.4) =$$

$$3.9 - 36.24 =$$

10. Evaluate the following.

$$-21 \div 7 = \square$$

$$-9 \times (-7) = \square$$

11. Answer the questions below.

Note that a change can be an increase or a decrease.

For an increase, use a positive number.

For a decrease, use a negative number.

(a) Kala owns 90 shares of a certain stock. Yesterday the value of each share went up by 10 dollars. What was the total change in value of her shares?

\_\_\_\_\_ dollars

(b) A private club was reduced by 50 members in 10 weeks. Its size changed by the same number of members each week. What was the change in the club's size each week?

\_\_\_\_\_ members

12. Evaluate each expression below.

$$0 \div 9 =$$

$$\frac{4}{0} =$$

13. Evaluate the following.

$$45 \div (-9) = \square$$

$$-4 \times (-7) = \square$$

14. Multiply.

$$-\frac{3}{7} \cdot 8$$

Write your answer in simplest form.

15. Divide. Write your answer as a fraction or mixed number in simplest form.

$$-\frac{6}{5} \div \left(-\frac{12}{25}\right)$$

16. Multiply.

$$-0.001 (-885.6) =$$

$$-0.4 (6) =$$

17. Evaluate each expression.

$$-2.28 \div 6 =$$

$$-321.8 \div (-1000) =$$

18. Evaluate the following.

$$|7 - 9| =$$

$$|7| - 9 =$$

19. The table gives the temperature (in  $^{\circ}\text{F}$ ) in five cities at 6 a.m. on the same day. Use the table to answer the questions.

City	Temperature ( $^{\circ}\text{F}$ )
Winnipeg	-15
Fairbanks	-28
St. Louis	34
Milwaukee	-6
Orlando	75

(a) By noon, the temperature in Milwaukee had risen by  $15^{\circ}\text{F}$ .

What was the temperature there at noon?

$^{\circ}\text{F}$

(b) How much higher was the 6 a.m. temperature in Winnipeg than in Fairbanks?

$^{\circ}\text{F}$  higher

20. Answer the questions below.

Note that a change can be an increase or a decrease.

For an increase, use a positive number.

For a decrease, use a negative number.

(a) Tony removed 8 fish from his pond each day for 32 days. What was the total change in the number of fish in the pond?

fish

(b) Jenny pumped 16 gallons of water into her pool. This was done over a period of 8 minutes at a constant rate. What was the change in the amount of water in the pool each minute?

gallons

21. Answer the questions below.

Note that a change can be an increase or a decrease.

For an increase, use a positive number.

For a decrease, use a negative number.

(a) In a lab, a substance was cooled by  $20^{\circ}\text{C}$  over a period of 5 hours at a constant rate. What was the change in temperature each hour?

$^{\circ}\text{C}$

(b) A tram moved downward 9 meters per second for 36 seconds. What was the total change in the tram's elevation?

meters

22. Evaluate  $-12 \div 6 - (-18)$ .

23. In  $\frac{1}{6}$  days, a construction crew built  $\frac{1}{2}$  miles of road.

What is the unit rate in miles per day?

Write your answer in simplest form.

24. For each table, determine whether it shows that  $x$  and  $y$  are proportional.

If  $x$  and  $y$  are proportional, fill in the blank with a number in simplest form.

$x$	3	5	7	9
$y$	21	35	49	63

\_\_\_ Proportional

y is \_\_\_ times  $x$

\_\_\_ Not proportional

$x$	1	2	3	4
$y$	8	16	24	32

\_\_\_ Proportional

y is \_\_\_ times  $x$

\_\_\_ Not proportional

25. For each table, determine whether it shows that  $x$  and  $y$  are proportional.

If  $x$  and  $y$  are proportional, fill in the blank with a number in simplest form.

$x$	16	30	48
$y$	4	6	8

\_\_\_ Proportional

y is \_\_\_ times  $x$

\_\_\_ Not proportional

$x$	20	30	40
$y$	8	12	16

\_\_\_ Proportional

y is \_\_\_ times  $x$

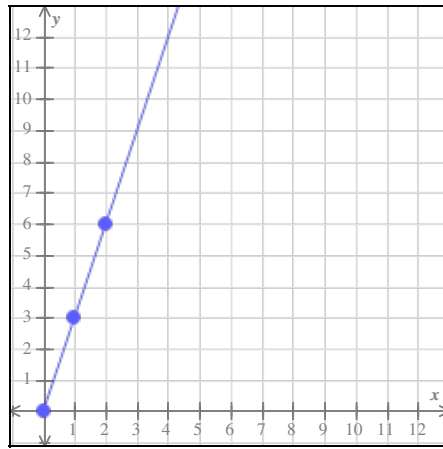
\_\_\_ Not proportional

26. Each graph below shows a relationship between  $x$  and  $y$ .

For each graph, determine whether  $x$  and  $y$  are proportional.

If  $x$  and  $y$  are proportional, fill in the blank with a number.

(a)

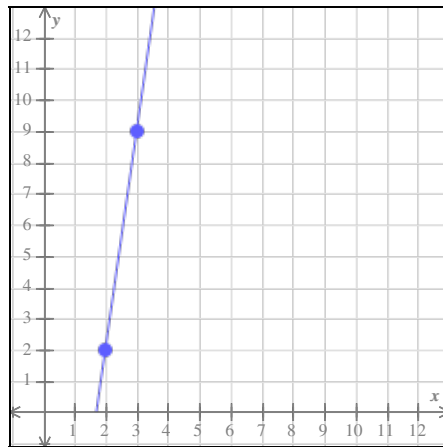


Proportional

y is \_\_\_\_\_ times  $x$

Not proportional

(b)



Proportional

y is \_\_\_\_\_ times  $x$

Not proportional

27. Martina can type 35 words in 7 minutes.

What is her rate in words per minute?

28. It costs \$20.52 for 4.5 pounds of shrimp.  
Find the unit price in dollars per pound.  
If necessary, round your answer to the nearest cent.

29. Jim paid \$12.98 for a 6.35 -kg bag of dog food. A few weeks later, he paid \$14.88 for a 7.03 -kg bag at a different store.  
Find the unit price for each bag. Then state which bag is the better buy based on the unit price.  
Round your answers to the nearest cent.

Unit price for the 6.35 -kg bag:  
\$ \_\_\_\_\_ per kg

Unit price for the 7.03 -kg bag:  
\$ \_\_\_\_\_ per kg

The better buy:

The 6.35 -kg bag

The 7.03 -kg bag

Neither (They have the same unit price)

30. For each table, determine whether it shows that  $x$  and  $y$  are proportional.

If  $x$  and  $y$  are proportional, fill in the blank with a number in simplest form.

$x$	5	8	11
$y$	10	32	66

\_\_\_ Proportional

$y$  is \_\_\_ times  $x$

\_\_\_ Not proportional

$x$	4	6	8
$y$	16	24	32

\_\_\_ Proportional

$y$  is \_\_\_ times  $x$

\_\_\_ Not proportional



31. For each table, determine whether it shows that  $x$  and  $y$  are proportional.

If  $x$  and  $y$  are proportional, fill in the blank with a number in simplest form.

$x$	25	42	63	88
$y$	5	7	9	11

Proportional

$y$  is \_\_\_\_\_ times  $x$

Not proportional

$x$	10	14	18	22
$y$	15	21	27	33

Proportional

$y$  is \_\_\_\_\_ times  $x$

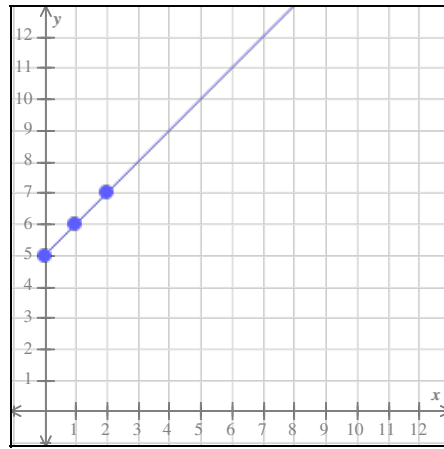
Not proportional

32. Each graph below shows a relationship between  $x$  and  $y$ .

For each graph, determine whether  $x$  and  $y$  are proportional.

If  $x$  and  $y$  are proportional, fill in the blank with a number.

(a)

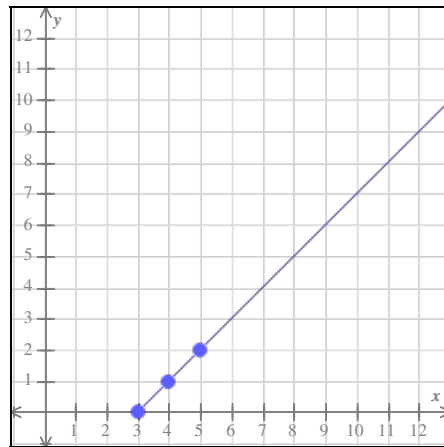


Proportional

$y$  is \_\_\_\_\_ times  $x$

Not proportional

(b)



Proportional

$y$  is \_\_\_\_\_ times  $x$

Not proportional

33.

For each equation, determine whether  $x$  and  $y$  are directly proportional (that is, if the equation shows direct variation).

If so, then find the constant of proportionality (the constant of variation).

$\frac{3}{5}x = y$ <p><input type="radio"/> Proportional Constant of proportionality: <math>k = \underline{\hspace{2cm}}</math></p> <p><input type="radio"/> Not proportional</p>	$y = 8x - 5$ <p><input type="radio"/> Proportional Constant of proportionality: <math>k = \underline{\hspace{2cm}}</math></p> <p><input type="radio"/> Not proportional</p>
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34. Keisha purchased  $n$  notebooks. They were 5 dollars each. Write an equation to represent the total cost  $c$  that Keisha paid.

35. In a scale drawing of an airplane, 1 inch represents 6 feet.



Scale
1 in : 6 ft

Answer the following.

(a)	In the scale drawing, the length of the airplane is 8 inches. What is the length of the real airplane?
	_____ feet
(b)	The wingspan of the real airplane is 60 feet. What is the wingspan of the airplane in the scale drawing?
	_____ inches

36. The table below gives the dimensions of a sculpture and a scale model of the sculpture.

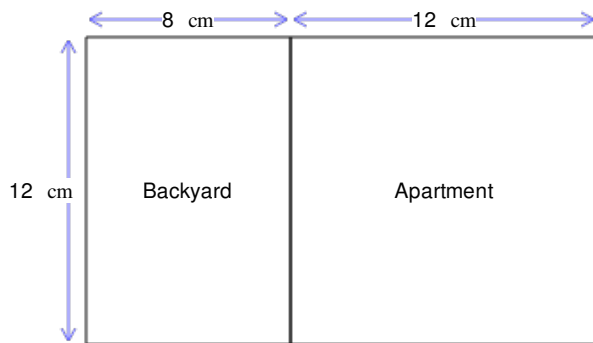
Find the scale factor of the model to the real sculpture.  
Write your answer as a fraction in simplest form.

	<b>Sculpture</b>	<b>Model</b>
Length (inches)	32	8
Width (inches)	28	7
Height (inches)	36	9

37. A scale drawing for a plot of land is shown below.

In the drawing, 4 cm represents 5 m.

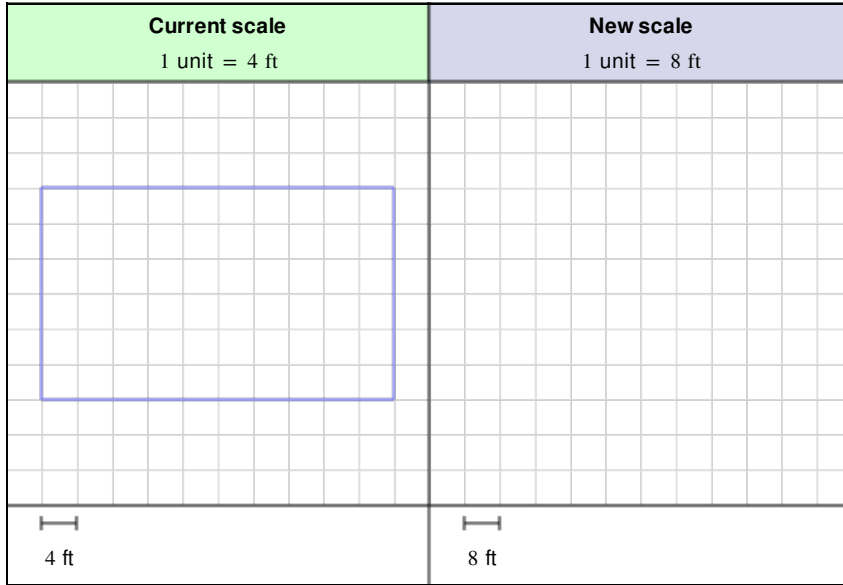
Assuming the backyard is rectangular, find the area of the real backyard.



38. The figure below was made with a scale of 1 unit = 4 ft.

Draw the figure with a new scale of 1 unit = 8 ft.

You can place your figure anywhere on the grid on the right.



39. Lamar made \$144 for 8 hours of work.

At the same rate, how many hours would he have to work to make \$234?

40. A machine produces 240 bolts in 25 minutes. At the same rate, how many bolts would be produced in 45 minutes?

# Semester 1 Practice Exam #1 Answers for class (T) PERIOD 4 - MATH 7

1.

Scenarios	Statements
(a) The price of a stock increases by \$12 and then decreases by \$12.	<input type="radio"/> The stock's price is higher than it started. <input type="radio"/> The stock's price is lower than it started. <input checked="" type="radio"/> The overall change in the stock's price is \$0.
(b) A boxer loses 2 pounds and then gains 6 pounds.	<input checked="" type="radio"/> The boxer is above her starting weight. <input type="radio"/> The boxer is below her starting weight. <input type="radio"/> The boxer is at her starting weight.
(c) A hot air balloon goes down 30 feet and then up 25 feet.	<input type="radio"/> The balloon is above its initial height. <input checked="" type="radio"/> The balloon is below its initial height. <input type="radio"/> The balloon is 0 feet from its initial height.

2.

(a) Which is a point 8 units to the right of $-4$ ?			
<input checked="" type="radio"/> $-4 + 8$	<input type="radio"/> $-4 + (-8)$	<input type="radio"/> $4 + 8$	<input type="radio"/> $4 + (-8)$
(b) Which is a point 8 units to the left of $-4$ ?			
<input type="radio"/> $-4 + 8$	<input checked="" type="radio"/> $-4 + (-8)$	<input type="radio"/> $4 + 8$	<input type="radio"/> $4 + (-8)$

3. Distance: 6

4.

(a) The top of a hill rises 70 feet above Checkpoint 5.

What is the altitude of the top of the hill?

$-106$  ft

(b) How much higher is Checkpoint 1 than Checkpoint 2?

2,872 ft higher

5.

$$3 + (-5) = -2$$

$$-4 + (-5) = -9$$

6.

$$-3 - 3 = -6$$

$$3 - 6 = -3$$

7.

$$-7 - (-5) = -2$$

$$7 - (-5) = 12$$

8.  $-\frac{1}{18}$

9.

$$27.5 + (-2.4) = 25.1$$

$$3.9 - 36.24 = -32.34$$

10.

$$-21 \div 7 = -3$$

$$-9 \times (-7) = 63$$

11.

(a) Kala owns 90 shares of a certain stock. Yesterday the value of each share went up by 10 dollars. What was the total change in value of her shares?

900 dollars

(b) A private club was reduced by 50 members in 10 weeks. Its size changed by the same number of members each week. What was the change in the club's size each week?

-5 members

12.

$$0 \div 9 = 0$$

$$\frac{4}{0} \text{ Undefined}$$

13.

$$45 \div (-9) = -5$$

$$-4 \times (-7) = 28$$

14.  $-\frac{24}{7}$

15.  $\frac{5}{2}$

16.

$$-0.001(-885.6) = 0.8856$$

$$-0.4(6) = -2.4$$

17.

$$-2.28 \div 6 = -0.38$$

$$-321.8 \div (-1000) = 0.3218$$

18.

$$|7 - 9| = 2$$

$$|7| - 9 = -2$$

19.

(a) By noon, the temperature in Milwaukee had risen by  $15^{\circ}\text{F}$ .

What was the temperature there at noon?

$9^{\circ}\text{F}$

(b) How much higher was the 6 a.m. temperature in Winnipeg than in Fairbanks?

$13^{\circ}\text{F}$  higher

20.

(a) Tony removed 8 fish from his pond each day for 32 days. What was the total change in the number of fish in the pond?

$-256$  fish

(b) Jenny pumped 16 gallons of water into her pool. This was done over a period of 8 minutes at a constant rate. What was the change in the amount of water in the pool each minute?

2 gallons

21.

(a) In a lab, a substance was cooled by  $20^{\circ}\text{C}$  over a period of 5 hours at a constant rate. What was the change in temperature each hour?

$-4^{\circ}\text{C}$

(b) A tram moved downward 9 meters per second for 36 seconds. What was the total change in the tram's elevation?

$-324$  meters



22. 16

23. 3 miles per day

24.

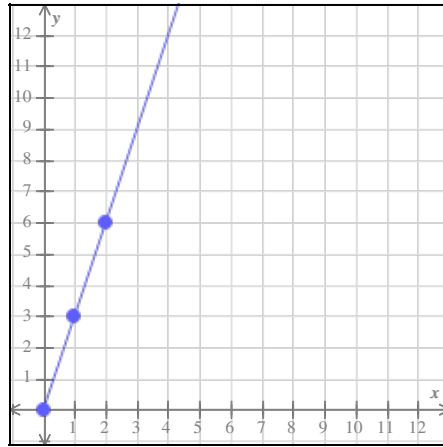
<table border="1"><tbody><tr><td><math>x</math></td><td>3</td><td>5</td><td>7</td><td>9</td></tr><tr><td><math>y</math></td><td>21</td><td>35</td><td>49</td><td>63</td></tr></tbody></table>	$x$	3	5	7	9	$y$	21	35	49	63	<table border="1"><tbody><tr><td><math>x</math></td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td><math>y</math></td><td>8</td><td>16</td><td>24</td><td>32</td></tr></tbody></table>	$x$	1	2	3	4	$y$	8	16	24	32
$x$	3	5	7	9																	
$y$	21	35	49	63																	
$x$	1	2	3	4																	
$y$	8	16	24	32																	
<input checked="" type="radio"/> Proportional $y$ is 7 times $x$	<input checked="" type="radio"/> Proportional $y$ is 8 times $x$																				
<input type="radio"/> Not proportional	<input type="radio"/> Not proportional																				

25.

<table border="1"><tbody><tr><td><math>x</math></td><td>16</td><td>30</td><td>48</td></tr><tr><td><math>y</math></td><td>4</td><td>6</td><td>8</td></tr></tbody></table>	$x$	16	30	48	$y$	4	6	8	<table border="1"><tbody><tr><td><math>x</math></td><td>20</td><td>30</td><td>40</td></tr><tr><td><math>y</math></td><td>8</td><td>12</td><td>16</td></tr></tbody></table>	$x$	20	30	40	$y$	8	12	16
$x$	16	30	48														
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$x$	20	30	40														
$y$	8	12	16														
<input type="radio"/> Proportional $y$ is <input type="text"/> times $x$	<input checked="" type="radio"/> Proportional $y$ is $\frac{2}{5}$ times $x$																
<input checked="" type="radio"/> Not proportional	<input type="radio"/> Not proportional																

26.

(a)

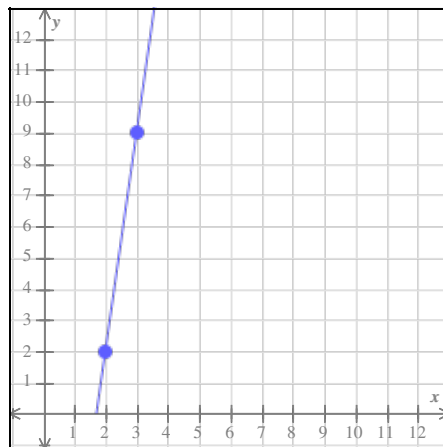


Proportional

$y$  is 3 times  $x$

Not proportional

(b)



Proportional

$y$  is \_\_\_\_\_ times  $x$

Not proportional

27. 5 words per minute

28. \$4.56

29.

Unit price for the 6.35 -kg bag: \$2.04 per kg

Unit price for the 7.03 -kg bag: \$2.12 per kg

- The better buy:  The 6.35 -kg bag  
 The 7.03 -kg bag  
 Neither (They have the same unit price)

30.

$x$	5	8	11
$y$	10	32	66

- Proportional  
 $y$  is  times  $x$   
 Not proportional

$x$	4	6	8
$y$	16	24	32

- Proportional  
 $y$  is 4 times  $x$   
 Not proportional

31.

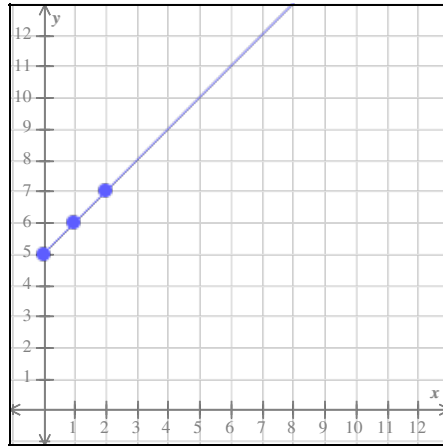
$x$	25	42	63	88
$y$	5	7	9	11

- Proportional  
 $y$  is  times  $x$   
 Not proportional

$x$	10	14	18	22
$y$	15	21	27	33

- Proportional  
 $y$  is  $\frac{3}{2}$  times  $x$   
 Not proportional

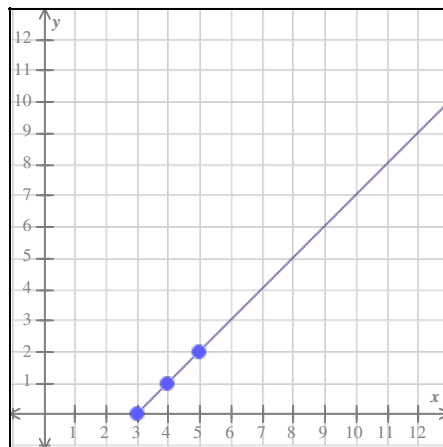
(a)


 Proportional

$y$  is \_\_\_\_\_ times  $x$

 Not proportional

(b)


 Proportional

$y$  is \_\_\_\_\_ times  $x$

 Not proportional

33.

$\frac{3}{5}x = y$ <p><input checked="" type="radio"/> Proportional</p> <p>Constant of proportionality: <math>k = \frac{3}{5}</math></p> <p><input type="radio"/> Not proportional</p>	$y = 8x - 5$ <p><input type="radio"/> Proportional</p> <p>Constant of proportionality: <math>k = \square</math></p> <p><input checked="" type="radio"/> Not proportional</p>
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34.  $c = 5n$

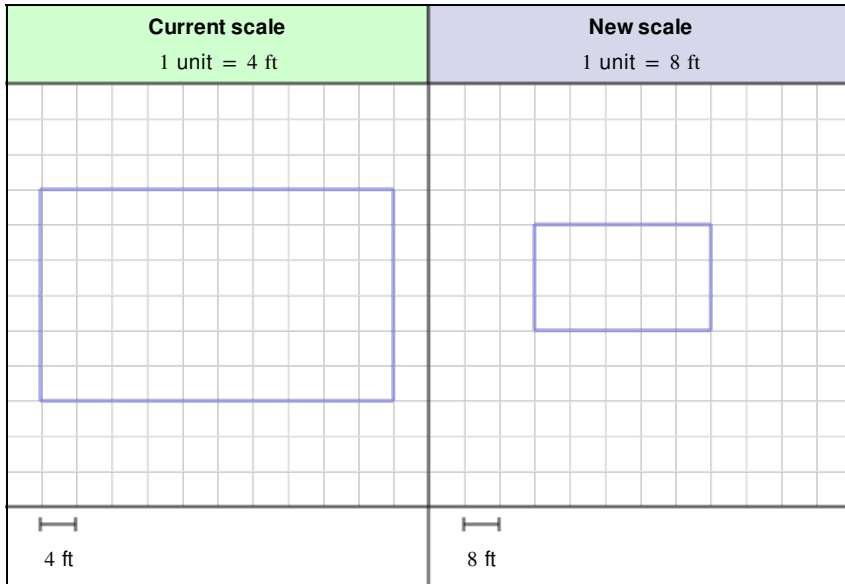
35.

(a)	In the scale drawing, the length of the airplane is 8 inches. What is the length of the real airplane?
	48 feet
(b)	The wingspan of the real airplane is 60 feet. What is the wingspan of the airplane in the scale drawing?
	10 inches

36. Scale factor:  $\frac{1}{4}$

37. Area of the real backyard:  $150 \text{ m}^2$

38.



39. 13 hours.

40. 432 bolts