8.5H Mini-Assessment 2

1. A plumber charges a service call of \$40 plus \$25 an hour. The equation that shows the relationship between the cost of a plumbing bill and the number of hours the repair required is $C = 40 + 25h$. Which statement is true about the relationship between C and h?

   A It is proportional and linear.

   B It is non-proportional and linear.

   C It is not linear and proportional.

   D It is not linear and non-proportional.

---

2. Which statement is NOT true of the graph of a proportional relationship?

   F It is linear.

   G It contains the origin.

   H It cannot have a constant ratio that is less than 1.

   J It shows a constant ratio.

---

3. A repairman works h hours a week. He charges \$50 plus \$35 per hour. The equation that shows this relationship is $C = 50 + 35h$. Which statement is true about this relationship?

   A It is proportional and linear with a slope of 35.

   B It is non-proportional and linear with a y-intercept of 50.

   C It is not linear.

   D It is linear and non-proportional with a slope of 50.

---

4. Which equation shows a proportional relationship?

   F $y = \frac{1}{4}x - 3$

   G $y = \frac{1}{4}x$

   H $y = 4x - 4$

   J $y = \frac{1}{4x}$

5. Which equation shows a non-proportional linear function whose graph contains (3, 9)?

A $y = x^2$

B $y = 3x$

C $y = 4x - 3$

D $y = 5x - 7$

---

6. Which equation represents a proportional linear function whose graph contains (12, 9)?

F $y = x - 3$

G $y = \frac{4x}{3}$

H $y = \frac{3}{4}x$

J $y = \frac{1}{2}x + 3$

---

7. A non-proportional function is represented by $y = 2x + 7$. Which table represents this function?

A

x	y
1	9
3	12
4	16

B

x	y
4	15
3	13
2	11

C

x	y
13	3
15	4
17	5

D

x	y
1	9
3	23
4	30

---

8. Which table represents a proportional linear relationship?

F

x	y
1	3
3	9
4	12

G

x	y
4	11
3	9
2	7

H

x	y
3	9
4	16
5	25

J

x	y
1	0
3	8
4	15

9. Which situation is a non-proportional linear relationship between x and y?

   A The diameter of a circle y, is twice the radius, x.

   B The number of girls x, in Ms. Bailey's class is 8 less than the number of boys, y.

   C Ms. Joyner bought 5 pairs of shoes each costing the same amount, x dollars. What is the total cost of the shoes, y?

   D A recipe for cookies uses 2 eggs. How many eggs, y, would x recipes use?

---

10. Which situation is a NOT a proportional relationship between x and y?

    F The length of a rectangle, y, is 5 times the width of the rectangle, x.

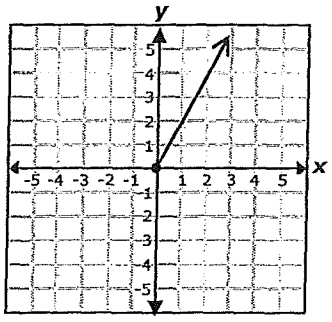
    G A bag contains x red tiles. The number of yellow tiles, y, is twice the number of red tiles.

    H Mr. Jones averaged 55 miles per hour on a trip. What is the distance, y, he travelled in x hours?

    J Joe gave 5 friends each x cookies. He gave 3 cookies to his brother. He gave away a total of y cookies.

8.5A Mini-Assessment 1

1. What equation describes the linear proportional relationship graphed below?



A $y = 4x$

B $y = 3x$

C $y = 2x$

D $y = \frac{1}{2}x$

---

2. Which equation represents a linear proportional relationship?

F $y = \frac{1}{2}x + 1$

G $y = 3x + 1$

H $y = x - 1$

J $y = 5x$

---

3. Look at the table of values for a linear proportional relationship shown below.

x	4	4.5	0.5	0
y	2	9	1	0

Which equation represents this relationship?

A $y = 4x$

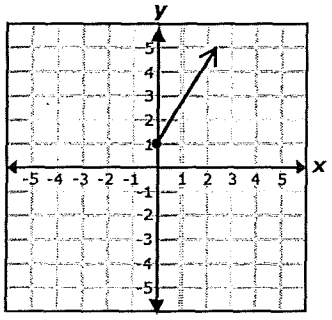
B $y = 2x$

C $y = 1.5x$

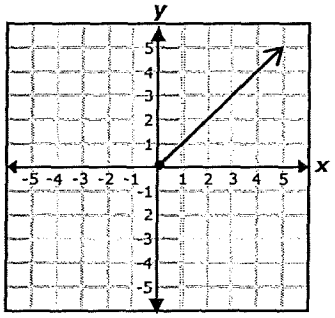
D $y = 0.5x$

4. Which graph below represents a proportional relationship?

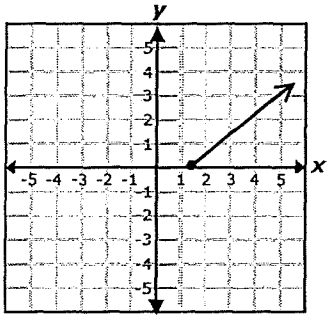
F



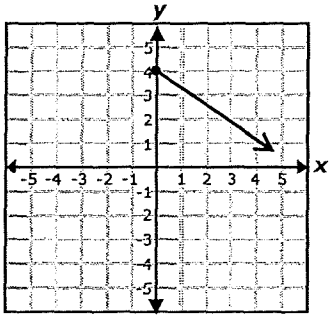
H



G



J



---

5. Which table of values represents a linear proportional relationship with a slope of $\frac{2}{3}$?

A

x	21	12	3
y	7	4	0.5

B

x	3	6	24
y	2	4	16

C

x	4	16	20
y	1	4	5

D

x	8	6	2
y	12	9	3

6. Which statement is NOT true about linear proportional relationships?

F The graph will be a line.

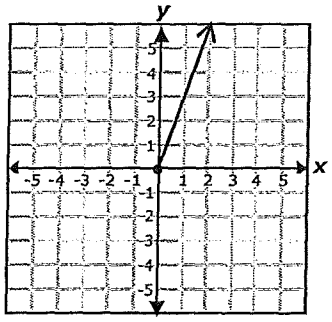
G The graph will have a positive *y*-intercept.

H The ratio of *y* to *x* will be constant for values of a table.

J The relationship can be represented with an equation of the form $y = kx$.

---

7. What is the slope of the linear proportional relationship graphed below?



A 3.5

B 0

C no slope

D 3

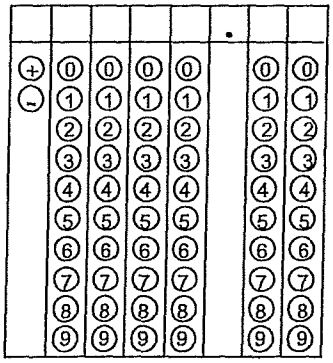
---

8. The table below represents a linear proportional function.

x	2	4	8	12
y	10	20	40	60

What is the slope of the function?

Record your answer on the grid below. Be sure to use the correct place value.



9. The tables below represent linear functions. Which table represents a linear proportional function?

A

x	3	12	4
y	6	24	8

B

x	2	4	12
y	5	9	25

C

x	2	4	10
y	7	13	31

D

x	10	20	5
y	10	12	9

---

10. Which line does NOT describe a proportional relationship?

F A line containing the points (4, 10) and (2, 5)

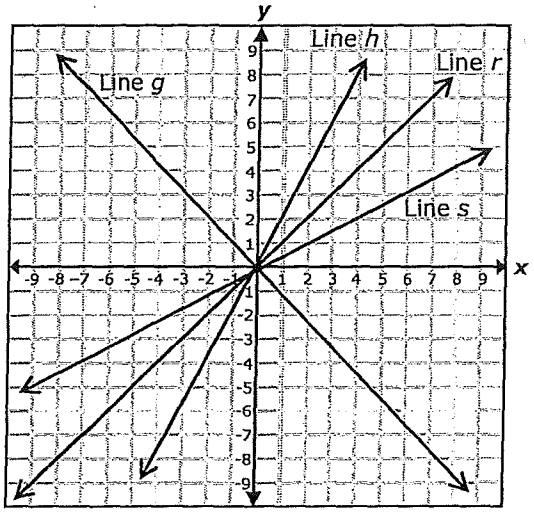
G A line containing the points (2, 8) and (4, 16)

H A line containing the points (9, 9) and (4, 4)

J A line containing the points (3, 5) and (30, 55)

8.4B Mini-Assessment 2

1. Which line graphed has a slope of 0.5?



A Line *g*

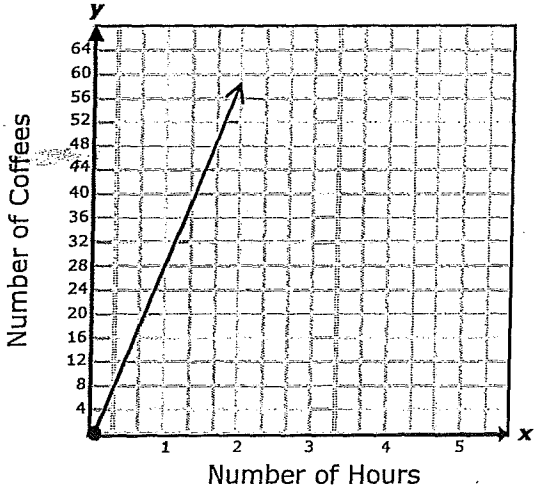
B Line *h*

C Line *r*

D Line *s*

---

2. The graph below shows the number of coffees served per hour at a local cofee shop.



Based on the information in the graph, what is the slope of the line?

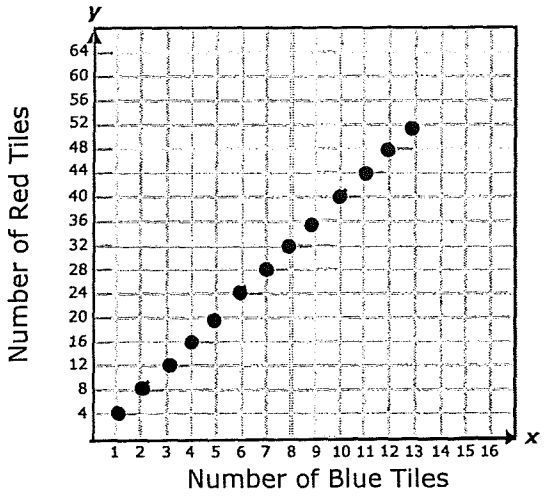
F 18

G 24

H 30

J 28

3. The ratio of the number of blue tiles in a box to number of red tiles in the box is 1:4. The relationship is shown on the graph below.



What is the slope of the graph?

A $\frac{1}{4}$

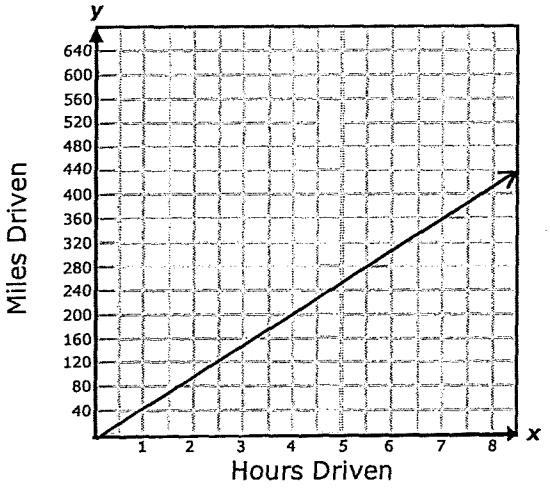
B 4

C 1

D 2

---

4. The graph below shows the relationship between the distance traveled and the number of hours the Garrison family travelled last weekend.



Based on the information in the graph, what is the unit rate in miles per hour?

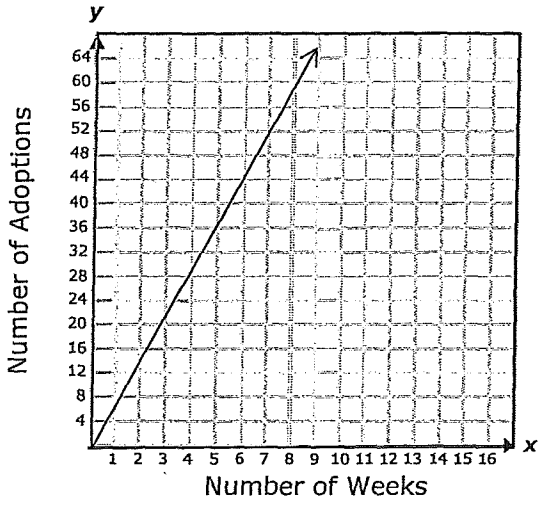
F 50 miles per hour

G 65 miles per hour

H 60 miles per hour

J 45 miles per hour

5. The graph below shows the number of pet adoptions the local pet shelter has completed over the past weeks.



What is the slope of the graph?

A 6 adoptions per week

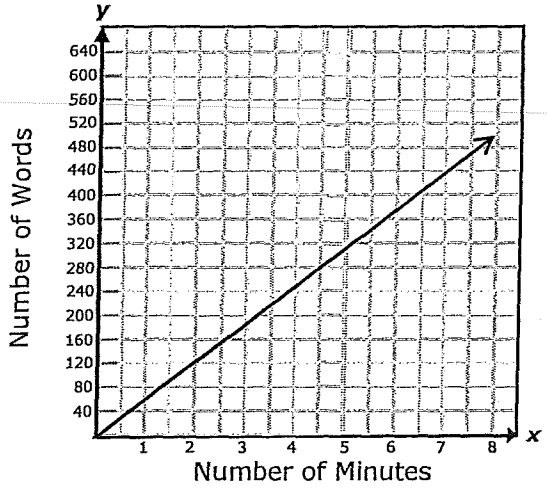
B 7 adoptions per week

C 5 adoptions per week

D 8 adoptions per week

---

6. The graph below shows the number of words typed by Mr. Garcia's secretary.



Based on the information in the graph, what is the unit rate in words per minute?

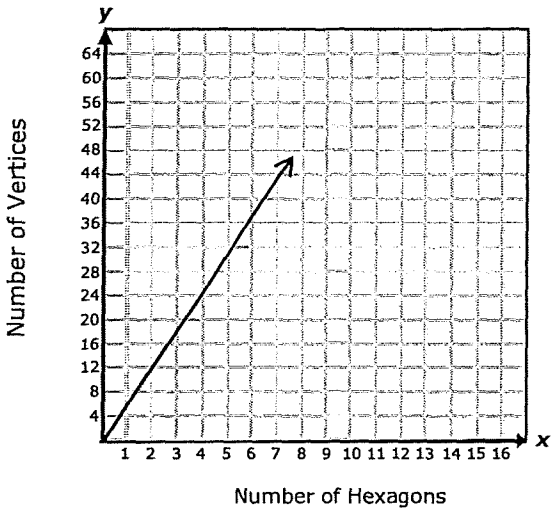
F 50 words per minute

G 65 words per minute

H 60 words per minute

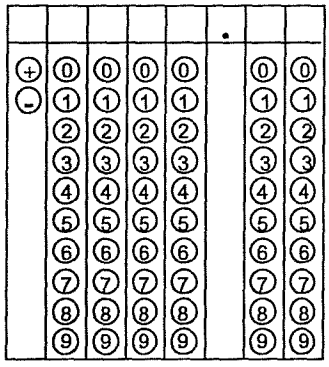
J 45 words per minute

7. The graph below shows the relationship between the number of vertices and the number of hexagons.



What is the slope of the graph?

Record your answer on the grid below. Be sure to use the correct place value.



---

8. The relationship between inches and feet is graphed on a coordinate grid. The vertical axis is labeled "inches" and the horizontal axis is labeled "feet". What is the slope of the graph?

F 12

G 36

H 6

J $\frac{1}{12}$

9. Margie bought 5 shirts on sale for $40. She graphed the relationship between the cost of the shirts and the number of shirts. She labeled the vertical axis "Cost" and she labeled the horizontal axis "Number of Shirts". The slope of the line is the unit cost per shirt. What is the slope of the graph?

   A $8 per shirt

   B $9 per shirt

   C $6 per shirt

   D $7.50 per shirt

---

10. The following advertised prices were graphed on a coordinate grid to show the cost of various numbers of shirts based on the advertised price. Which advertised price's graph would have a slope of $12 per shirt?

    F 3 shirts for $24

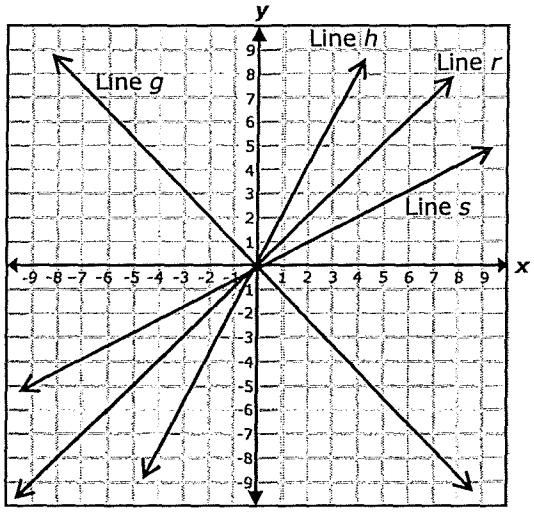
    G 4 shirts for $50

    H 5 shirts for $60

    J 2 shirts for $20

8.4B Mini-Assessment 2

1. Which line graphed has a slope of 0.5?



A Line *g*

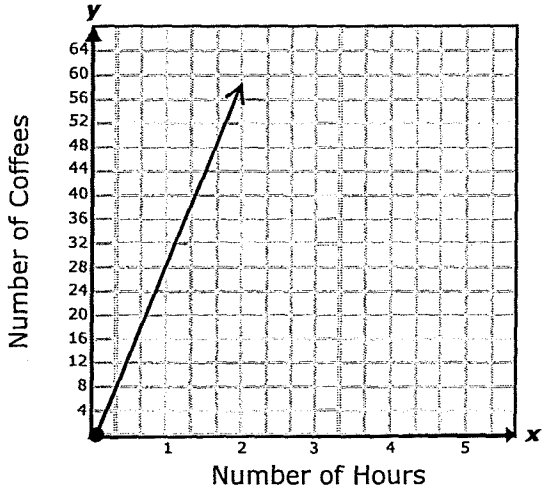
B Line *h*

C Line *r*

D Line *s*

---

2. The graph below shows the number of coffees served per hour at a local cofee shop.



Based on the information in the graph, what is the slope of the line?

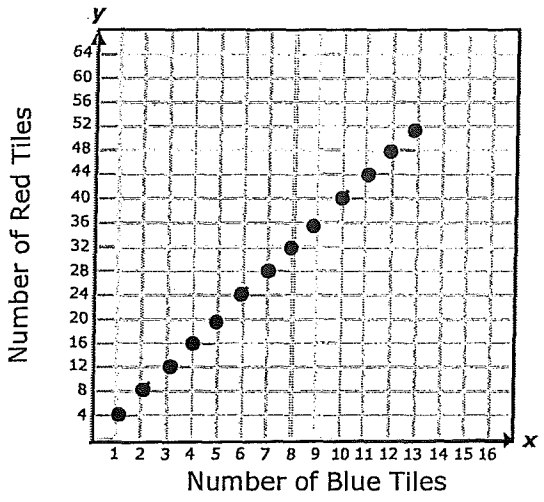
F 18

G 24

H 30

J 28

3. The ratio of the number of blue tiles in a box to number of red tiles in the box is 1:4. The relationship is shown on the graph below.



What is the slope of the graph?

A $\frac{1}{4}$

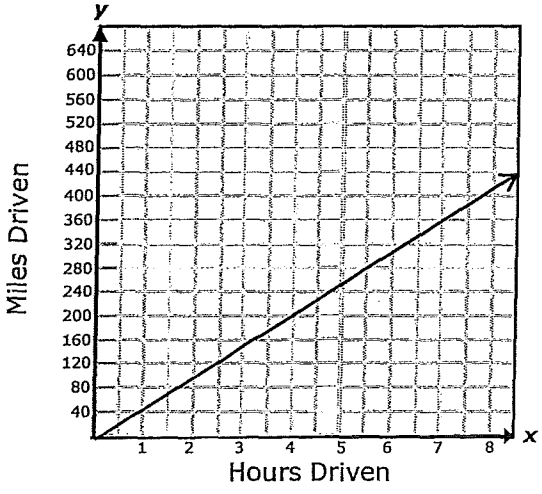
B 4

C 1

D 2

---

4. The graph below shows the relationship between the distance traveled and the number of hours the Garrison family travelled last weekend.



Based on the information in the graph, what is the unit rate in miles per hour?

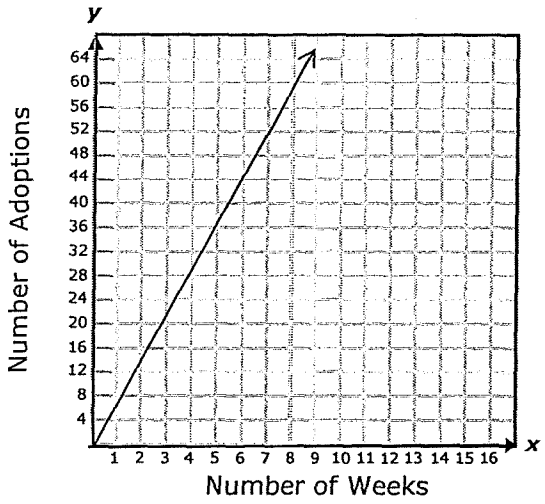
F 50 miles per hour

G 65 miles per hour

H 60 miles per hour

J 45 miles per hour

5. The graph below shows the number of pet adoptions the local pet shelter has completed over the past weeks.



What is the slope of the graph?

A 6 adoptions per week

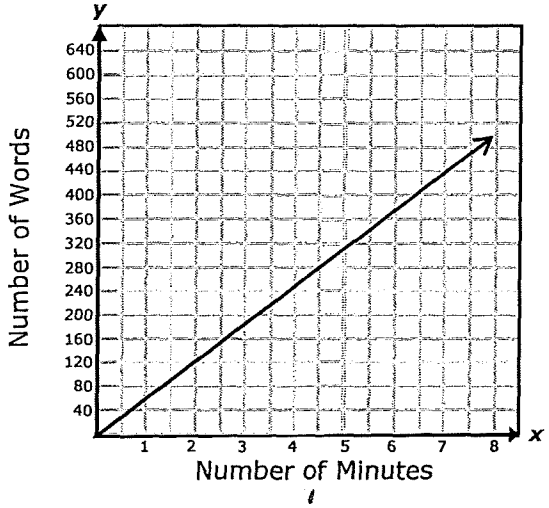
B 7 adoptions per week

C 5 adoptions per week

D 8 adoptions per week

---

6. The graph below shows the number of words typed by Mr. Garcia's secretary.



Based on the information in the graph, what is the unit rate in words per minute?

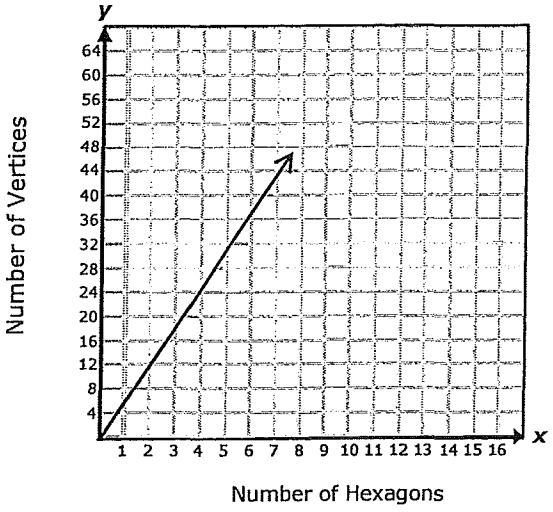
F 50 words per minute

G 65 words per minute

H 60 words per minute

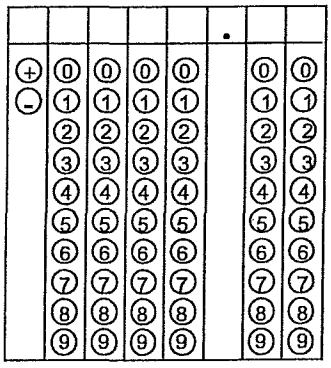
J 45 words per minute

7. The graph below shows the relationship between the number of vertices and the number of hexagons.



What is the slope of the graph?

Record your answer on the grid below. Be sure to use the correct place value.



---

8. The relationship between inches and feet is graphed on a coordinate grid. The vertical axis is labeled "inches" and the horizontal axis is labeled "feet". What is the slope of the graph?

F 12

G 36

H 6

J $\frac{1}{12}$

9. Margie bought 5 shirts on sale for $40. She graphed the relationship between the cost of the shirts and the number of shirts. She labeled the vertical axis "Cost" and she labeled the horizontal axis "Number of Shirts". The slope of the line is the unit cost per shirt. What is the slope of the graph?

   A $8 per shirt

   B $9 per shirt

   C $6 per shirt

   D $7.50 per shirt

---

10. The following advertised prices were graphed on a coordinate grid to show the cost of various numbers of shirts based on the advertised price. Which advertised price's graph would have a slope of $12 per shirt?

    F 3 shirts for $24

    G 4 shirts for $50

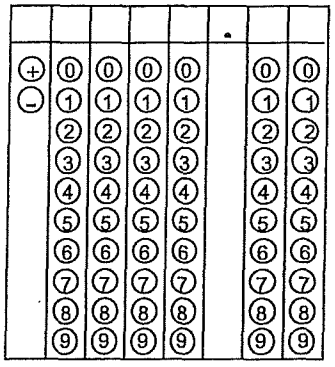
    H 5 shirts for $60

    J 2 shirts for $20

8.4A Mini-Assessment 2

1. What is the slope of a line containing the points (2, 1), (3, 5), and (5, 13)?

   Record your answer on the grid below. Be sure to use the correct place value.



---

2. What is the ratio of the change in y to the change in x for the points with coordinates (0, 6) and (5, 1)?

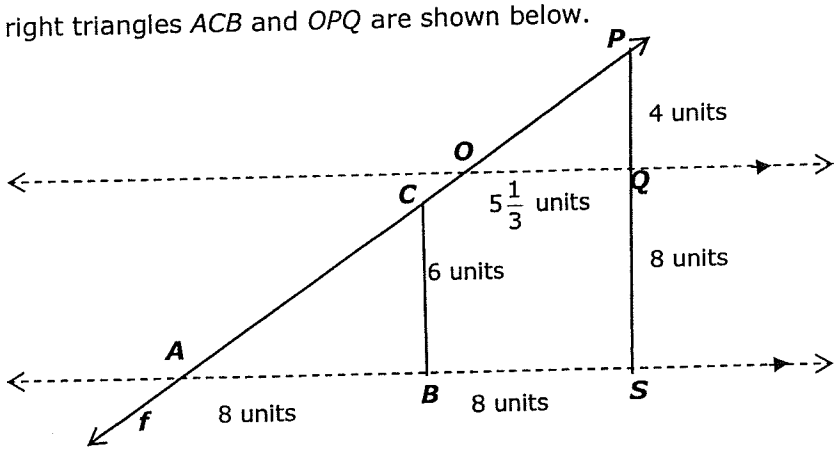
   F The ratio of the change in y to the change in x is $\frac{6-1}{5-0}=\frac{5}{5}=1$.

   G The ratio of the change in y to the change in x is $\frac{6-1}{0-5}=\frac{5}{-5}=-1$.

   H The ratio of the change in y to the change in x is $\frac{5-0}{6-1}=\frac{5}{5}=1$.

   J The ratio of the change in y to the change in x is $\frac{0-5}{6-1}=\frac{-5}{5}=1$.

3. Similar right triangles *ACB* and *OPQ* are shown below.



Which of the following does NOT describe the slope of line *f* ?

A $\frac{6}{8}$

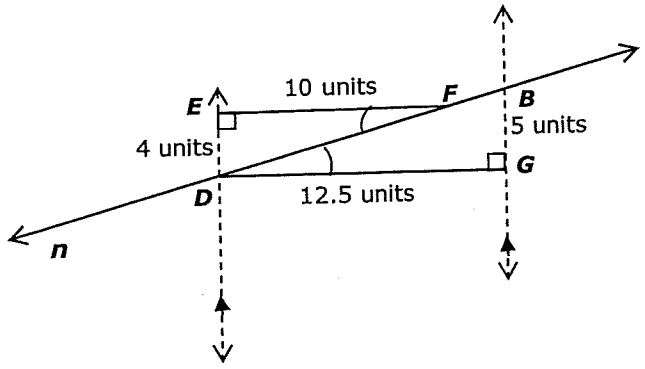
B $\frac{12}{16}$

C $\frac{4}{5\frac{1}{3}}$

D $\frac{8}{6}$

---

4. Similar right triangles *DEF* and *DGB* are shown below.



Which of the following statements is NOT true?

F The slope of line *n* is $\frac{4}{10}=\frac{2}{5}$.

G The slope of line *n* is $\frac{5}{12.5}=\frac{2}{5}$.

H The slope of line *n* is $\frac{10}{4}=\frac{5}{2}$.

J When *y* increases 1 unit, *x* increases 2.5 units.

5. What is the change in y for the two points (9, 6) and (3, 11) if you are moving from the first point to the second point?

A −6

B 5

C 6

D −5

---

6. Which of the following lines will have a negative slope?

F A line containing the points (0, 0) and (6, 4)

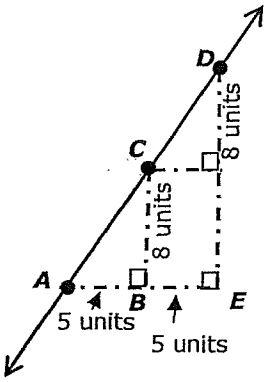
G A line containing the points (−4, −6) and (3, −4)

H A line containing the points (−3, 5) and (6, 1)

J A line containing the points (3, −4).and (7, 11)

---

7. A line with 3 points identified is shown below. Right triangles *ABC* and *AED* are similar.



Which statement is true?

A The slope of line *AD* is $\frac{8}{5}$.

B The slope of line *AD* is $\frac{5}{8}$.

C The slope of line *AD* is $\frac{5}{5}=1$.

D The slope of line *AD* is $\frac{10}{16}$.

8. Two points on a line are (−4, 2) and (6, 7). Using the formula, slope $= \frac{y_2 - y_1}{x_2 - x_1}$ for the ratio of the change in y to the change in x, what is the slope of the line?

F The slope of line $= \frac{-10}{-5} = 2$.

G The slope of line $= \frac{5}{2}$.

H The slope of line $= \frac{5}{-10} = -\frac{1}{2}$.

J The slope of line $= \frac{-5}{-10} = \frac{1}{2}$.

---

9. Judy and Bea were given a line with the points (0, −3), (4, 0), and (8, 3). They plotted the points and drew the line. Using vertical and horizontal lines through the points, they created similar right triangles. Judy used the first two points and Bea used the second two points to find the slope. Judy found the slope to be $\frac{0-0}{-3-4} = \frac{0}{-7} = 0$. Bea found the slope to be $\frac{4-8}{0-3} = \frac{-4}{-3} = \frac{4}{3}$. Which of the following statements is correct?

A Neither found the correct slope which should be $\frac{3}{4}$.

B Bea found the correct slope.

C Judy found the correct slope.

D Neither found the correct slope which should be $-\frac{3}{4}$.

---

10. Which line has a slope of 5?

F A line containing two points with coordinates (0, 0) and (0, 5).

G A line containing two points with coordinates (3, 6) and (4, 10).

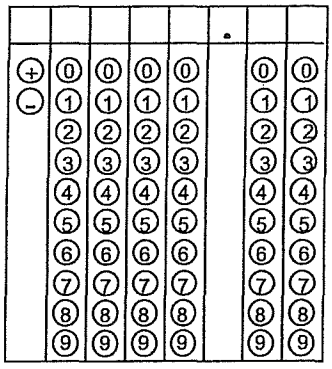
H A line containing two points with coordinates (5, 1) and (6, 6).

J A line containing two points with coordinates (2, 5) and (1, 10).

8.4A Mini-Assessment 1

1. What is the slope of a line containing the points (3, 5), (4, 7), and (5, 9)?

   Record your answer on the grid below. Be sure to use the correct place value.



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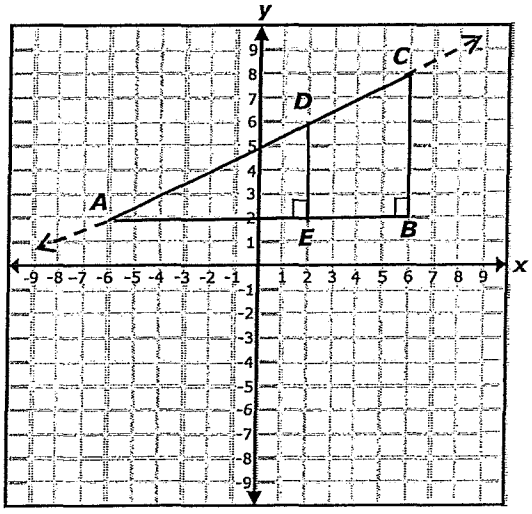
2. The coordinate grid shows similar right triangles *ABC* and *AED*.



Which statement is true based on the triangles above?

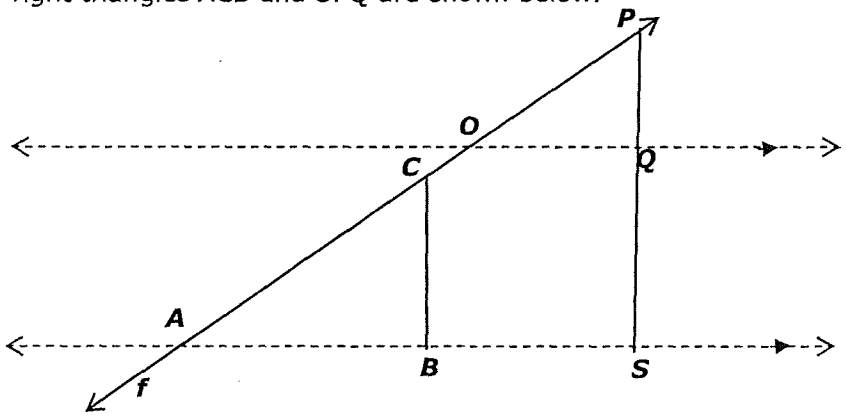
F The slope of $\overleftrightarrow{AC}$ is the same as the slope of $\overleftrightarrow{AD}$ which is $\frac{6}{12}=\frac{1}{2}$.

G The slope of $\overleftrightarrow{AB}$ is the same as the slope of $\overleftrightarrow{AE}$ which is 2.

H The slope of $\overleftrightarrow{AC}$ is the same as the slope of $\overleftrightarrow{BC}$ which is $\frac{3}{2}$.

J The slope of $\overleftrightarrow{AC}$ is the same as the slope of $\overleftrightarrow{DE}$ which is 3.

3. Similar right triangles *ACB* and *OPQ* are shown below.



Which of the following does NOT describe the slope of line *f* ?

A $\frac{BC}{AB}$

C $\frac{AB}{BC}$

B $\frac{PS}{AS}$

D $\frac{PQ}{OP}$

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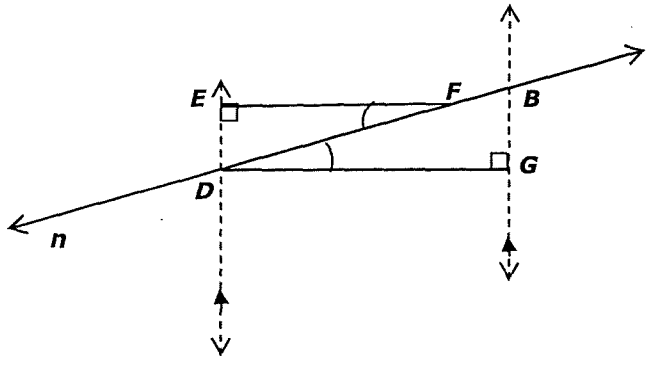
4. Similar right triangles *DEF* and *DGB* are shown below.



Which of the following statements is true about the slope of line *n*?

F The slope of line *n* is *m* and $m = \frac{DE}{EF} = \frac{BG}{DG}$.

G The slope of line *n* is *m* and $m = \frac{\text{change in } y}{\text{change in } x}$. Using points *D* and *B*, the slope is $\frac{DG}{BG}$.

H The slope of line *n* is *m* and $m = \frac{\text{change in } y}{\text{change in } x}$. Using points *D* and *F*, the slope is $\frac{EF}{ED}$.

J The slope of line *n* is *m* and $m = \frac{\text{change in } y}{\text{change in } x}$. Using points *B* and *F*, the slope is $\frac{BF}{BG}$.

5. Leon's task is to show that the slope of a line is the ratio of the change in *y*-values to the change in the *x*-values of any two points on the line. The steps below are the steps that Leon used to accomplish his task, but the last step is missing.

   a. Draw a line and locate 4 points on the line.

   b. Draw vertical parallel lines through the first and fourth points.

   c. Draw a hortizonatal line from the third point to the parallel line through the fourth point.

   d. Draw a hortizonatal line from the second point to the parallel line through the first point.

   e. Establish the similar right triangles you just created.

   f. Determine the slope of the line using the rise to run ratio for the triangle containing the first and second points.

   g. Determine the slope of the line using the rise to run ratio for the triangle containing the third and fourth points.

   h. ?

   What should be the last step?

   A Determine the ratio of the hypotenuse to a leg in each triangle.

   B Compare the two rise to run ratios to the ratios of corresponding sides of similar triangles to see that they are equal which is the slope.

   C Find the run to rise ratios for the two triangles and see if they are equal which would mean the slope was equal to this ratio.

   D Not Here

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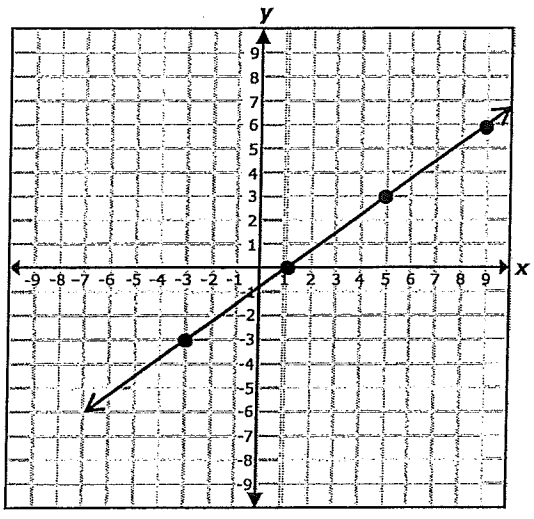
6. A line with 4 points identified is shown on the coordinate grid below.



Compare the rise to run ratio for three of the points. What is the slope of the line?

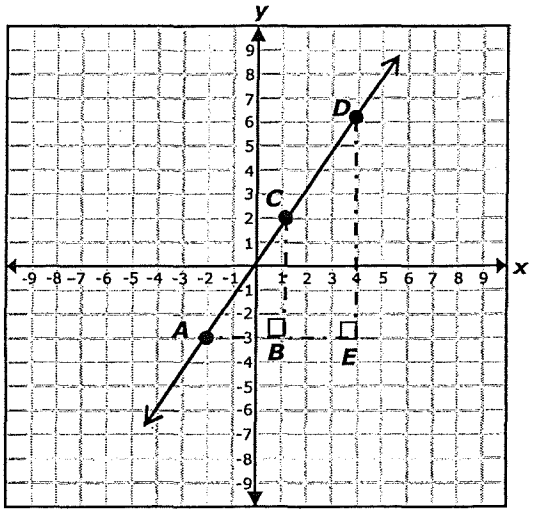
F $1.\overline{3}$

G 0.5

H 0.75

J 0.25

7. A line with 3 points identified is shown on the coordinate grid below.



Based on the graph above, which statement is true?

A Triangle *AED* is similar to triangle *ABC*. $\frac{AB}{BC}=\frac{AE}{AD}=\frac{3}{5}=\frac{6}{10}$ which is the slope of line *AD*.

B Triangle *AED* is similar to triangle *ABC*. $\frac{BC}{AB}=\frac{AE}{ED}=\frac{5}{3}=\frac{6}{10}$ which is the slope of line *AD*.

C Triangle *AED* is similar to triangle *ABC*. $\frac{AB}{BC}=\frac{AE}{ED}=\frac{3}{5}=\frac{6}{10}$ which is the slope of line *AD*.

D Triangle *AED* is similar to triangle *ABC*. $\frac{BC}{AB}=\frac{ED}{AE}=\frac{5}{3}=\frac{10}{6}$ which is the slope of line *AD*.

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8. Two points on a line are (−1, 4) and (5, 1). Using the formula, $\frac{y_2-y_1}{x_2-x_1}$ for the change in *y* and change in *x* ratio, what is the slope of the line?

F The slope of line $=\frac{-6}{3}=-2$.

G The slope of line $=\frac{-3}{6}=-\frac{1}{2}$.

H The slope of line $=\frac{-3}{4}$.

J The slope of line $=\frac{4}{3}$.

9. Benjy and Carl were given a line with the points (5, 3), (7, 7), and (9, 11). They plotted the points and drew the line. Using vertical and horizontal lines through the points, they created similar right triangles. Benjy used the first two points and Carl used the second two points to find the slope. Benjy found the slope to be $\frac{7-5}{7-3}=\frac{2}{4}=\frac{1}{2}$. Carl found the slope to be $\frac{11-7}{9-7}=\frac{4}{2}=2$. Which of the following statements is correct?

A Neither found the correct slope which should be $-\frac{1}{2}$.

B Carl found the correct slope.

C Benjy found the correct slope.

D Neither found the correct slope which should be -2.

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10. Which line has a slope of $\frac{3}{4}$?

F A line containing two points with coordinates (0, 0) and (3, 4).

G A line containing two points with coordinates (1, 6) and (−3, 9).

H A line containing two points with coordinates (1, 6) and (−3, 9).

J A line containing two points with coordinates (2, 5) and (6, 8).