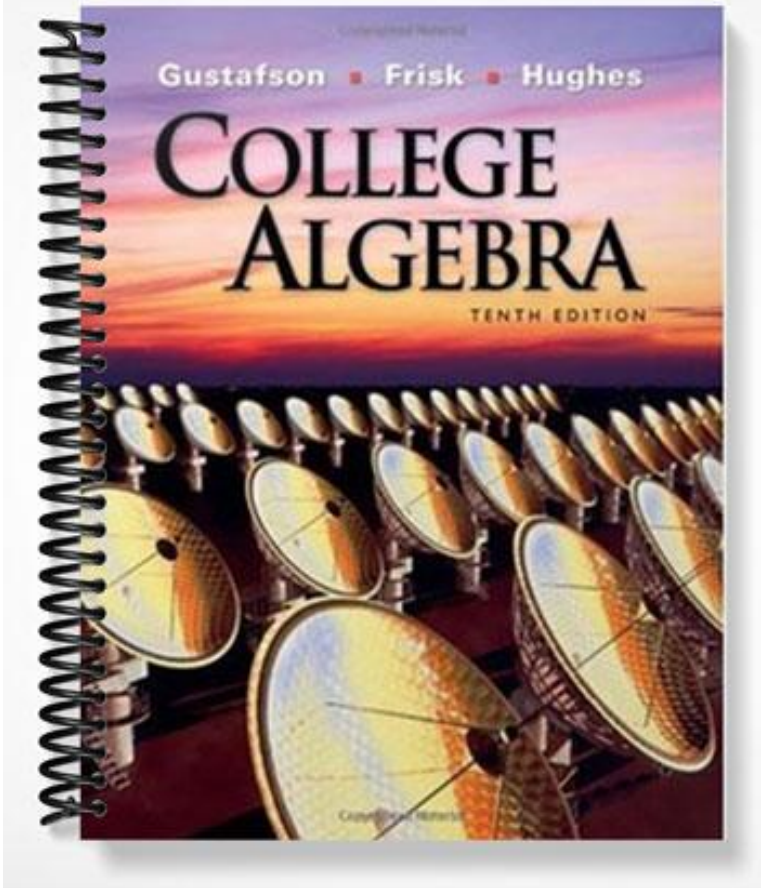
TEST BANK



Chapter 2.2: The Slope of a Nonvertical Line

Student: _____

1. Find the slope of the line passing through the pair of points:

   P (-14, 6); Q (11, 11)

   A. $m = -5$
   B. $m = 5$
   C. $m = \frac{1}{5}$

   D. $m = -\frac{1}{5}$

   E. none of these

2. Find the slope of the line passing through the pair of points.

   $P(15, \sqrt{7}); Q(\sqrt{7}, 15)$

   A. $m = 2$
   B. $m = 1$
   C. $m = -1$
   D. $m = 15$
   E. none of these

3. Find the slope of the line.

   $y = 2x + 6$

   A. $m = 2$
   B. $m = 3$
   C. $m = -1$
   D. $m = -2$
   E. $m = 6$

4. Find the slope of the line.

$2x + 15y = 29$

A. $m = 2$
B. $m = \frac{15}{2}$

C. $m = \frac{2}{29}$

D. $m = \frac{2}{15}$

E. $m = -\frac{2}{15}$

5. Find the slope of the line.

$2(x - 7) = 15y + 3$

A. $m = 2$
B. $m = \frac{2}{15}$

C. $m = -\frac{2}{15}$

D. $m = \frac{4}{15}$

E. $m = \frac{7}{15}$

6. Find the slope of the line.

$13(y + x) = 13(x - 14)$

A. $m = 13$
B. $m = 1$
C. $m = -1$
D. $m = 17$
E. $m = 0$

7. Find the slope of the line.

$19x - 9 = 15(y + x)$

A. $m = \frac{19}{15}$

B. $m = \frac{9}{19}$

C. $m = \frac{4}{15}$

D. $m = 19$
E. $m = -\frac{4}{15}$

8. Find the slope of the line through P (-3, -5) and Q (1, -5).

A. $m = 6$
B. $m = -5$
C. $m = 0$
D. $m = 3$
E. $m = 1$

9. Find the slope of the line through P (3, 8) and Q (-8, 19).

A. $m = -3$
B. $m = 0$
C. $m = -2$
D. $m = 1$
E. $m = -1$

10. What type of triangle is represented by these vertices A, B and C?

A (0, 0); B (-2, 5); C (5, 2)

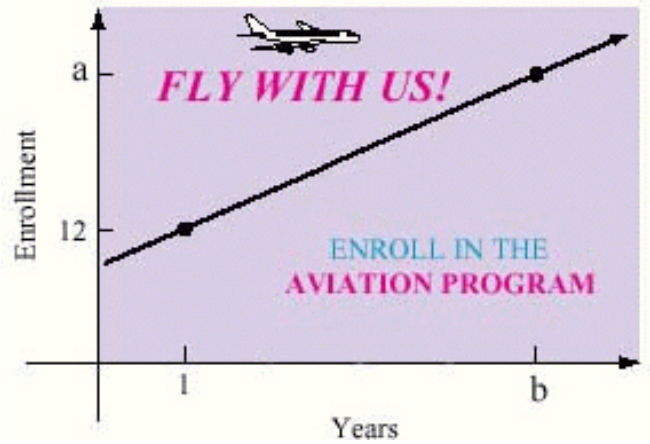
A. acute triangle
B. obtuse triangle
C. right triangle

11. True or False?

The points A, B, C and D are vertices of a square.

A (-2, -4); B (0, -3); C (-1, -1); D (-3, -2)

A. True
B. False

12. 

When a college started an aviation program, the administration agreed to predict enrollments using a straightline method. If the enrollment during the first year was 12, and the enrollment during year 5 was 24, find the rate of growth per year (the slope of the line). See Illustration.

$a = 24$, $b = 5$

A. $m = 4$
B. $m = 7$
C. $m = 3$
D. $m = 2$
E. none of these

13. The price of computers has been dropping steadily for the past ten years. If a desktop PC cost $6,000 ten years ago, and the same computing power cost $1,100 three years ago, find the rate of decrease per year. (Assume a straight-line model).

A. $233.67 per year
B. $710.20 per year
C. $349.97 per year
D. $729.00 per year
E. $700.00 per year

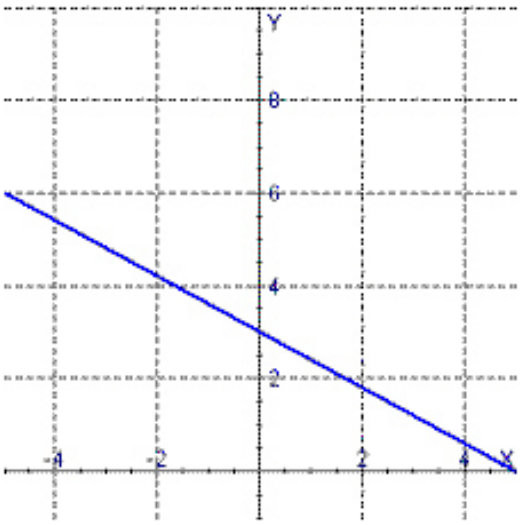
14. A pilot files a flight plan indicating her intention to fly at a constant speed of 660 mph. Find an equation that expresses the distance traveled in terms of the flying time, then find slope of the line. (Hint: $d = rt$)

A. $m = 330$
B. $m = 760$
C. $m = 660$
D. $m = 1{,}320$
E. none of these

15. A student deposits $20 each month in a Holiday Club account at her bank. The account pays no interest. Write an equation that expresses the amount in her account in terms of the number of deposits.

A. $y = 20x$
B. $y = 0$
C. $y = 20x+2$
D. $y = 20x+1$
E. none of these

16. Tell whether the slope of the line is positive, negative, 0, or undefined.



A. Zero slope
B. Negative slope
C. Undefined slope
D. Positive slope

17. Determine whether the lines with the given slopes are parallel, perpendicular, or neither.

$m_1 = \sqrt{150}; m_2 = 5\sqrt{6}$

A. parallel
B. perpendicular
C. neither

18. Determine whether the lines with the given slopes are parallel, perpendicular, or neither.

$m_1 = -\sqrt{5}; m_2 = \frac{\sqrt{5}}{5}$

A. perpendicular
B. parallel
C. neither

19. Determine whether the lines with the given slopes are parallel, perpendicular, or neither.

$m_1 = 10; m_2 = 0.1$

A. parallel
B. perpendicular
C. neither

20. Determine whether the line through the points *P* (8, 26), *Q* (26, 28) and the line through *R* (4, 13), *S* (13, 14) are parallel, perpendicular, or neither.

A. parallel
B. perpendicular
C. neither

21. Find the slopes of the lines *PQ* and *PR*, and determine whether the points *P*, *Q*, and *R* lie on the same line.

P (4, 3); *Q* (-3, -11); *R* (7, 9)

A. on the same line
B. not on the same line

22. Determine which, if any, of the three lines PQ, PR and QR are perpendicular.

P (3, 5)
Q (3, 11)
R (9, 5)

A. PR and QR are perpendicular.
B. PQ and PR are perpendicular.
C. PQ and QR are perpendicular.
D. None of the lines are perpendicular.

23. Find the slope of the line passing through the pair of points.

$P(15, \sqrt{2}); Q(\sqrt{2}, 15)$

_____

24. Find the slope of the line through P (-5, -8) and Q (6, -96).

_____

25. 

When a college started an aviation program, the administration agreed to predict enrollments using a straightline method. If the enrollment during the first year was 12, and the enrollment during year 5 was 24, find the rate of growth per year (the slope of the line). See Illustration.

$a = 24$, $b = 5$

_____

26. The price of computers has been dropping steadily for the past ten years. If a desktop PC cost $5,400 ten years ago, and the same computing power cost $1,800 three years ago, find the rate of decrease per year. Round your answer to two decimal places. (Assume a straight-line model.)

_____

27. *Find the slope of the line through P and Q by matching each value of P and Q with the corresponding slope.*

1. $m = 4$	$P(-4, -1)$ and $Q(-1, 5)$	____
2. $m = -1$	$P(-7, -3)$ and $Q(1, -35)$	____
3. $m = 2$	$P(-6, -2)$ and $Q(0, -8)$	____
4. $m = -4$	$P(-5, 0)$ and $Q(0, 20)$	____

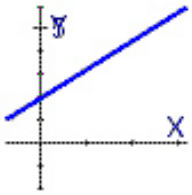
28. *Determine whether the triangle ABC is a right triangle or an acute triangle.*

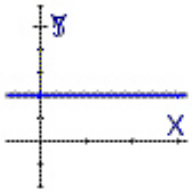
1. right triangle	*A* (-7, -7) *B* (-9, -2) *C* (-2, -5)	____
2. acute triangle	*A* (2, 2) *B* (0, 7) *C* (-2, -2)	____

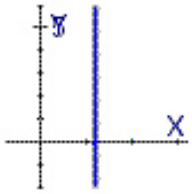
29. *Determine whether the quadrangle ABCD is a square.*

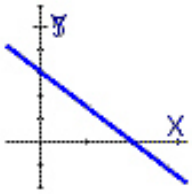
1. square	*A* (5, 3) *B* (7, 4) *C* (6, 6) *D* (4, 5)	____
2. not square	*A* (-2, -2) *B* (2, -1) *C* (1, 5) *D* (-3, 4)	____

30. *Tell whether the slope of the line is positive, negative, 0, or undefined.*

1. Negative slope  ____

2. Positive slope  ____

3. Zero slope  ____

4. Undefined slope  ____

31. *Determine whether the line through the given points and the line through R (8, 7) and S(5, 14) are parallel, perpendicular, or neither.*

1. parallel $m_1 = -1; m_2 = -2$ ____

2. neither $m_1 = 1; m_2 = -1$ ____

3. perpendicular $m_1 = \sqrt{40}; m_2 = 2\sqrt{10}$ ____

32. *Determine which, if any, of the three lines PQ, PR and QR are perpendicular.*

1. *PQ* and *PR* are perpendicular
P (3, 5) ____
Q (3, 11)
R (9, 5)

2. *PQ* and *QR* are perpendicular
P (7, -3) ____
Q (3, 5)
R (5, 6)

33. Find the slope of the line passing through the pair of points.

P (-8, -9); *Q* (17, 11)

34. Find the slope of the line.

$y = 5x + 23$

35. Find the slope of the line.

$4x + 40y = 5$

36. Find the slope of the line.

$19(x - 13) = 20y + 20$

37. Find the slope of the line.

$4(y + x) = 4(x - 7)$

38. Find the slope of the line.

$8x - 30 = 20(y + x)$

39. A pilot files a flight plan indicating her intention to fly at a constant speed of 690 mph. Find an equation that expresses the distance traveled in terms of the flying time, then find the slope of the line. (Hint: $d = rt$)

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Chapter 2.2: The Slope of a Nonvertical Line Key

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   C. $m = \frac{1}{5}$

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   E. none of these

2. Find the slope of the line passing through the pair of points.

   $P(15, \sqrt{7}); Q(\sqrt{7}, 15)$

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   B. $m = 1$
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C. $y = 20x+2$
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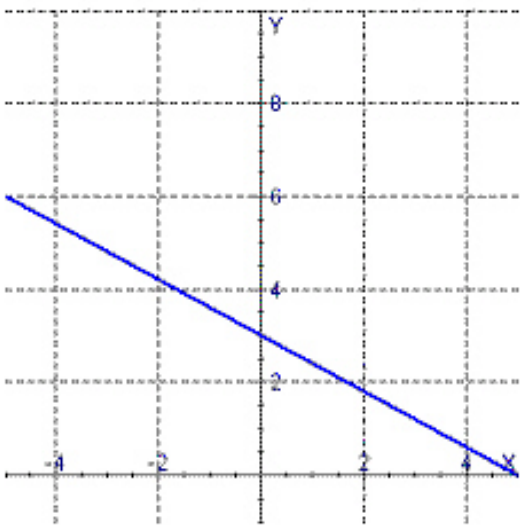
16. Tell whether the slope of the line is positive, negative, 0, or undefined.



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18. Determine whether the lines with the given slopes are parallel, perpendicular, or neither.

$m_1 = -\sqrt{5}; m_2 = \frac{\sqrt{5}}{5}$

A. perpendicular
B. parallel
C. neither

19. Determine whether the lines with the given slopes are parallel, perpendicular, or neither.

$m_1 = 10; m_2 = 0.1$

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B. perpendicular
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20. Determine whether the line through the points *P* (8, 26), *Q* (26, 28) and the line through *R* (4, 13), *S* (13, 14) are parallel, perpendicular, or neither.

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21. Find the slopes of the lines *PQ* and *PR*, and determine whether the points *P*, *Q*, and *R* lie on the same line.

P (4, 3); *Q* (-3, -11); *R* (7, 9)

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Q (3, 11)
R (9, 5)

A. PR and QR are perpendicular.
B. PQ and PR are perpendicular.
C. PQ and QR are perpendicular.
D. None of the lines are perpendicular.

23. Find the slope of the line passing through the pair of points.

$P(15, \sqrt{2}); Q(\sqrt{2}, 15)$

-1

24. Find the slope of the line through P (-5, -8) and Q (6, -96).

-8

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$a = 24$, $b = 5$

3

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514.29

27. *Find the slope of the line through P and Q by matching each value of P and Q with the corresponding slope.*

1. $m = 4$	$P(-4, -1)$ and $Q(-1, 5)$	**3**
2. $m = -1$	$P(-7, -3)$ and $Q(1, -35)$	**4**
3. $m = 2$	$P(-6, -2)$ and $Q(0, -8)$	**2**
4. $m = -4$	$P(-5, 0)$ and $Q(0, 20)$	**1**

28. *Determine whether the triangle ABC is a right triangle or an acute triangle.*

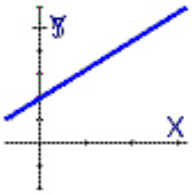
1. right triangle	*A* (-7, -7) *B* (-9, -2) *C* (-2, -5)	**1**
2. acute triangle	*A* (2, 2) *B* (0, 7) *C* (-2, -2)	**2**

29. *Determine whether the quadrangle ABCD is a square.*

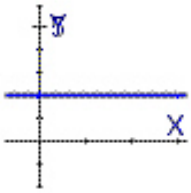
1. square	*A* (5, 3) *B* (7, 4) *C* (6, 6) *D* (4, 5)	**1**
2. not square	*A* (-2, -2) *B* (2, -1) *C* (1, 5) *D* (-3, 4)	**2**

30. *Tell whether the slope of the line is positive, negative, 0, or undefined.*

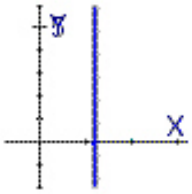
1. Negative slope **2**



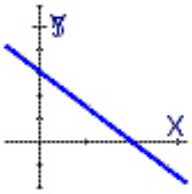
2. Positive slope **3**



3. Zero slope **4**



4. Undefined slope **1**



31. *Determine whether the line through the given points and the line through R (8, 7) and S(5, 14) are parallel, perpendicular, or neither.*

1. parallel $m_1 = -1; m_2 = -2$ **2**
2. neither $m_1 = 1; m_2 = -1$ **3**
3. perpendicular $m_1 = \sqrt{40}; m_2 = 2\sqrt{10}$ **1**

32. *Determine which, if any, of the three lines PQ, PR and QR are perpendicular.*

1. *PQ* and *PR* are perpendicular
   P (3, 5) **1**
   Q (3, 11)
   R (9, 5)
2. *PQ* and *QR* are perpendicular
   P (7, -3) **2**
   Q (3, 5)
   R (5, 6)

33. Find the slope of the line passing through the pair of points.

P (-8, -9); *Q* (17, 11)

$\frac{4}{5}$

34. Find the slope of the line.

$y = 5x + 23$

$m = 5$

35. Find the slope of the line.

$4x + 40y = 5$

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36. Find the slope of the line.

$19(x - 13) = 20y + 20$

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37. Find the slope of the line.

$4(y + x) = 4(x - 7)$

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38. Find the slope of the line.

$8x - 30 = 20(y + x)$

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$m = 690$

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$y = 120x + 0$