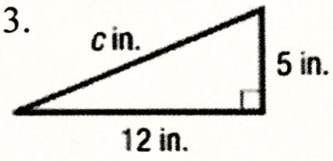
Name: Key Period: SCORE:

Secondary 1 Honors - Unit 5 Review

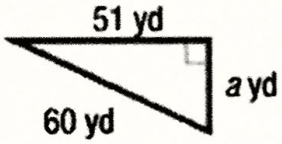
Simplify the following square roots.

1. $\sqrt{15}$ $\sqrt{15}$
2. $\sqrt{8}$ $2\sqrt{2}$
3. $\sqrt{690}$ $\sqrt{690}$
4. $\sqrt{18}$ $3\sqrt{2}$
5. $\sqrt{16}$ 4
6. $\sqrt{1400}$ $10\sqrt{14}$
7. $\sqrt{20}$ $2\sqrt{5}$
8. $\sqrt{35}$ $\sqrt{35}$
9. $\sqrt{260}$ $2\sqrt{65}$
10. $\sqrt{200}$ $10\sqrt{2}$
11. $\sqrt{75}$ $5\sqrt{3}$
12. $\sqrt{168}$ $2\sqrt{42}$

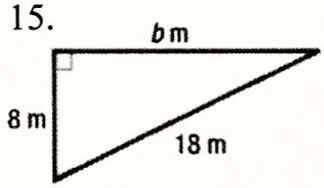
Find the length of the missing side.

13. 

$c = 13$ in

14. 

$a = 3\sqrt{111} \approx 31.61$ yd

15. 

$b = 2\sqrt{65} \approx 16.12$ m

16. A Pythagorean Triple consists of 3 positive integers such that $a^2 + b^2 = c^2$. The table at the right lists some Pythagorean triples with some values missing. The first column is A. The second column is B. The third column is C. Find the missing piece length of the Pythagorean triples in the table.

Pythagorean Triples		
3	4	5
6	8	10
9	12	15
5	12	13
8	15	17

Do the following side lengths make a right triangle?

17) 28, 195, 197 — Yes

18) 30, 122, 125 — No

19) 12, 14, $\sqrt{340}$ — Yes

20) $\sqrt{2}, \sqrt{8}, 10$ — No

Use the distance formula to find the distance between the following coordinate points.

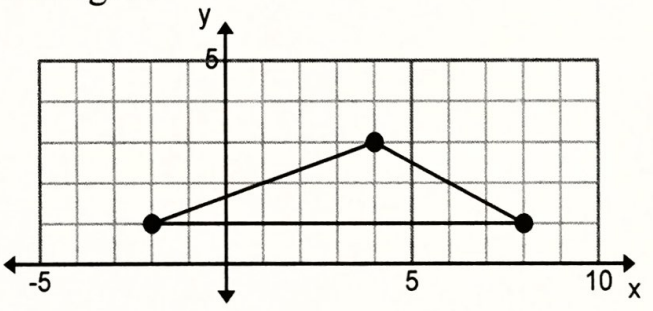
21. (6,4) (-3,-2) — $3\sqrt{13} \approx 10.82$ u

22. (4,-5) (-9,8) — $13\sqrt{2} \approx 18.38$ u

23. (-3,1) (-5, -9) — $2\sqrt{26} \approx 10.20$ u

24. (2,8) (14,3) — 13 u

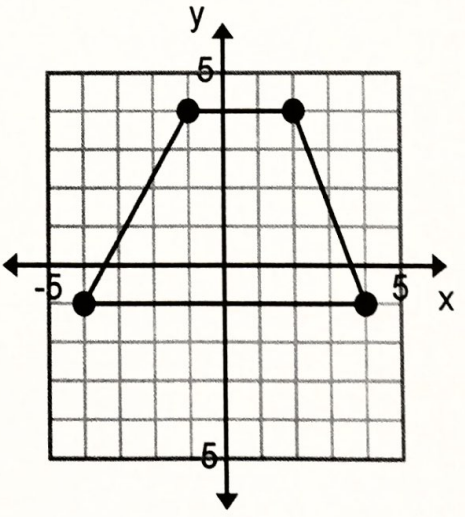
25. Find the perimeter and area of the graphed figure.
A(-2,1) B(4,3) C(8,1)



Perimeter : 20.8 u

Area: 10 u^2

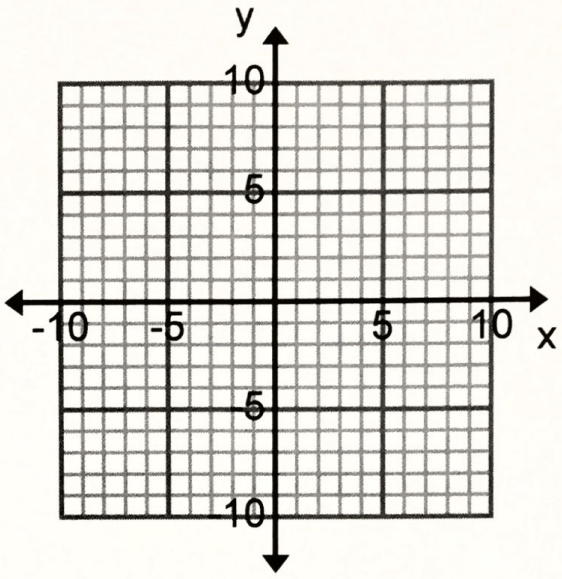
26. Find the perimeter and area of the graphed figure.
A(-1,4) B(2, 4) C(4,-1) D(-4,-1)



Perimeter : 22.22 u

Area : 27.5 u^2

27. Find the circumference and area of a circle with the center at (4,2) and radius that goes from the center to (7,7).

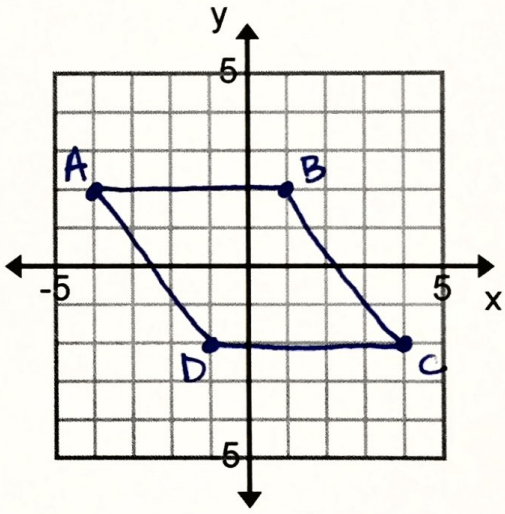


Circumference : 36.64 u

Area : 106.81 u^2

28. Determine what type of quadrilateral is formed by the following points based on the properties of quadrilaterals. Justify your reasoning.

A(-4,2) B(1,2) C(4,-2) D(-1,-2)



Slope of the Sides:			
$m_{\overline{AB}} = 0$	$m_{\overline{BC}} = \frac{-4}{3}$	$m_{\overline{CD}} = 0$	$m_{\overline{AD}} = \frac{-4}{3}$
Length of the Sides:			
$AB = 5$	$BC = 5$	$CD = 5$	$DA = 5$
Angle Measures:			
$\overline{AB}$ not $\perp \overline{AD}$	$\overline{AB}$ not $\perp \overline{BC}$	$\overline{BC}$ not $\perp \overline{CD}$	$\overline{CD}$ not $\perp \overline{DA}$
$m\angle A \neq 90°$	$m\angle B \neq 90°$	$m\angle C \neq 90°$	$m\angle D \neq 90°$

Diagonals:		
Length:	Slope:	Relationship:
$BD = 4.47$ u	$m_{\overline{BD}} = 2/1$	$\overline{BD} \perp \overline{AC}$
$AC = 8.94$ u	$m_{\overline{AC}} = -1/2$	$\overline{BD} \not\cong \overline{AC}$

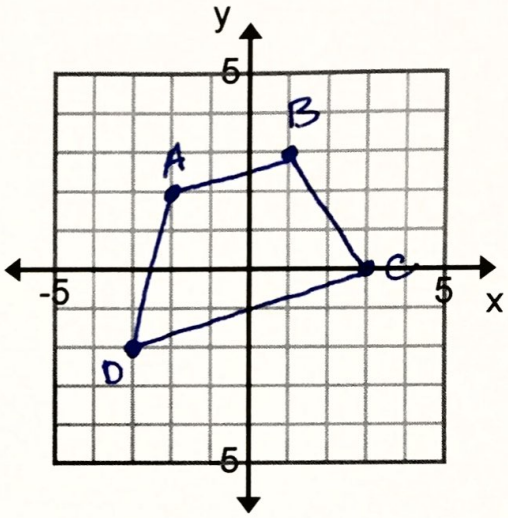
Type of quadrilateral: Rhombus Explain:

all sides are $\cong$, $AB = BC = CD = DA = 5$; the $\angle \neq 90°$

other explaination : diagonals are $\perp$ but not $\cong$, $\overline{BD} \perp \overline{AC}$; $\overline{BD} \not\cong \overline{AC}$

29. Determine what type of quadrilateral is formed by the following points based on the properties of quadrilaterals. Justify your reasoning.

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



Slope of the Sides:			
$m_{\overline{AB}} = \frac{1}{3}$	$m_{\overline{BC}} = \frac{-3}{2}$	$m_{\overline{CD}} = \frac{1}{3}$	$m_{\overline{DA}} = \frac{4}{1}$
Length of the Sides:			
$AB = \sqrt{10} \approx 3.16$	$BC = \sqrt{13} \approx 3.61$	$CD = 2\sqrt{10} \approx 6.32$	$DA = \sqrt{17} \approx 4.12$
Angle Measures:			
$\overline{AB}$ not $\perp$ $\overline{BC}$ $m\angle B \neq 90^\circ$	$\overline{BC}$ not $\perp$ $\overline{CD}$ $m\angle C \neq 90^\circ$	$\overline{CD}$ not $\perp$ $\overline{DA}$ $m\angle D \neq 90^\circ$	$\overline{DA}$ not $\perp$ $\overline{AB}$ $m\angle A \neq 90^\circ$

Diagonals:		
Length: $BD = 6.4$, $AC = 5.39$	Slope: $m_{\overline{BD}} = \frac{5}{4}$, $m_{\overline{AC}} = -\frac{2}{5}$	Relationship: $\overline{BD}$ not $\perp$ $\overline{AC}$, $\overline{BD} \not\parallel \overline{AC}$

Type of quadrilateral: Trapezoid Explain:

There is EXACTLY one pair of parallel sides, $\overline{AB} \parallel \overline{CD}$ & $\overline{BC}$ not $\parallel$ $\overline{DA}$

30. Find the slope for $\overleftrightarrow{QR}$ and $\overleftrightarrow{ST}$, then decide whether the lines are parallel, perpendicular, or neither. Q (-6, -7) R(12, 14) S(5,-4) T(11,3)

$m_{\overline{QR}} = \frac{7}{6}$

Parallel

$m_{\overline{ST}} = \frac{7}{6}$

31. Find the slope for $\overleftrightarrow{VW}$ and $\overleftrightarrow{XY}$, then decide whether the lines are parallel, perpendicular, or neither. X (2,9) Y(15, 21) V(-12,19) W(-24,32)

$m_{\overline{VW}} = -\frac{13}{12}$

perpendicular

$m_{\overline{XY}} = \frac{12}{13}$

Are the following lines parallel, perpendicular or neither?

32. $y = 2x + 7$
$2x + 4y = -9$

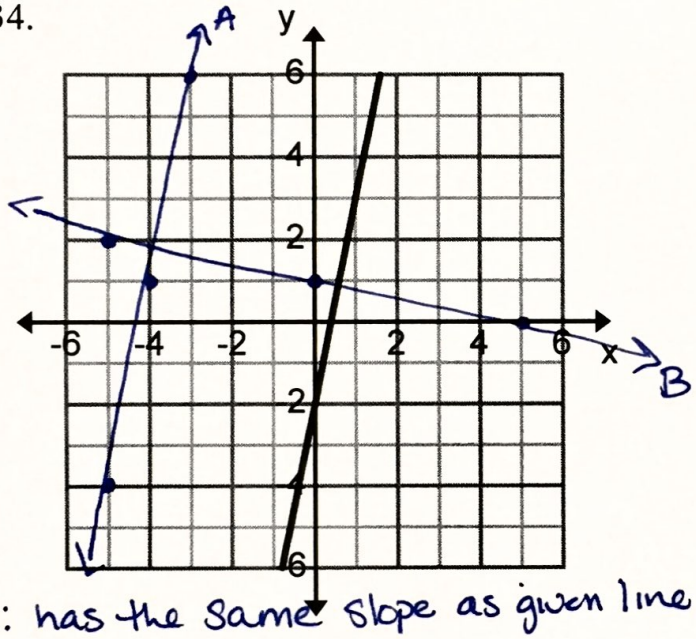
perpendicular

33. $3x + 4y = 12$
$4x + 3y = -3$

neither

Draw a line parallel and perpendicular to the given line and explain how you know each is parallel or perpendicular.

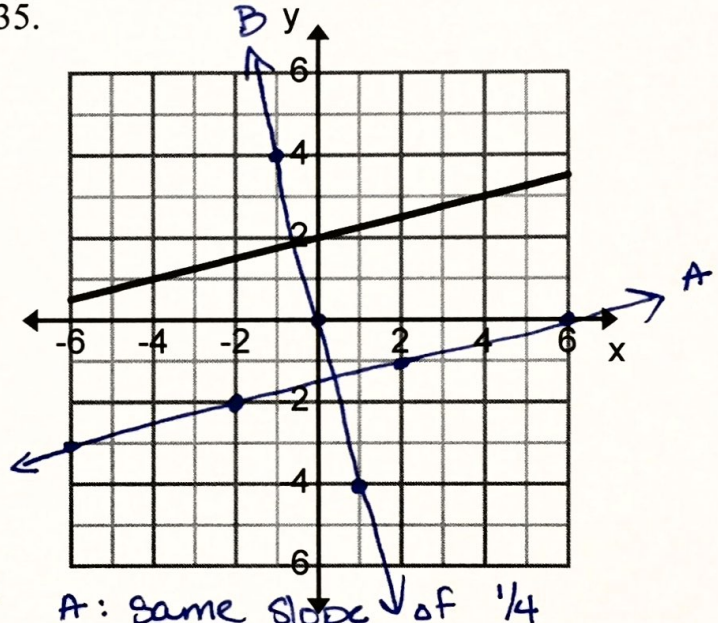
34.



A: has the same slope as given line = $\frac{5}{1}$

B: has an opposite reciprocal to the given line = $-1/5$

35.



A: same slope of 1/4

B: opposite reciprocal slope of -4

Write an equation in slope-intercept form that satisfies the given information.

36. Parallel to the line in question #34 and contains the point (2,6).

$y = 5x - 4$

37. Perpendicular to the line in question #35 and contains the point (1,-5).

$y = -4x - 1$

38. Parallel to $y = 3x - 7$ and passes through (-3,-5).

$y = 3x + 4$

39. Write an equation that is perpendicular to $y = 5x - 9$ and passes through (-15,12).

$y = -\frac{1}{5}x + 9$

Write an equation in slope-intercept form that satisfies the given information.

40. Write an equation that is parallel to $2x+3y=9$ and contains the point (-6,10).

$y = -\frac{2}{3}x + 6$

41. Write an equation that is perpendicular $x+3y=-4$ and passes through (-4,-7)

$y = 3x + 5$

42. Write two equations that are perpendicular to each other.

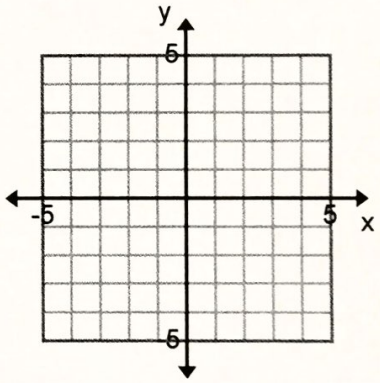
* answers may vary *

43. Given a circle with a center at the origin and a point on the circle at $(0,5)$, determine if the points are on the circle. Justify your answer by showing your work.

a. Identify the radius: $r = 5$

b. $(-3,4)$ yes

c. $(\sqrt{10},\sqrt{15})$ yes



44. Given a circle with the center at $(4,1)$ and a point on the circle at $(2,4)$, determine if the points are on the circle. Justify your answer by showing your work.

a. Identify the radius: $r = \sqrt{13} \approx 3.61$

b. $(7,3)$ yes

c. $(0,1)$ No