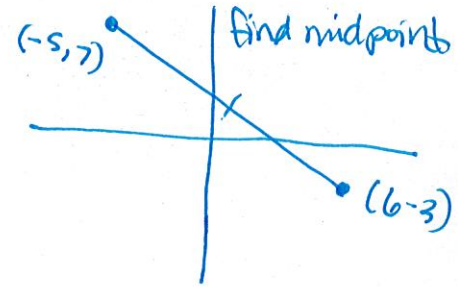


Geometry Study Guide

Name: Key

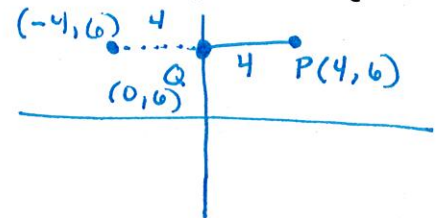
1. A circle has a diameter that extends from $(-5, 7)$ to $(6, -3)$. What are the coordinates of the center of the circle?

- A. $(-\frac{11}{2}, 5)$ $(\frac{-5+6}{2}, \frac{7+(-3)}{2})$
 B. $(-4, \frac{13}{2})$ $(\frac{1}{2}, 2)$
 C. $(\frac{1}{2}, 2)$
 D. $(1, 4)$



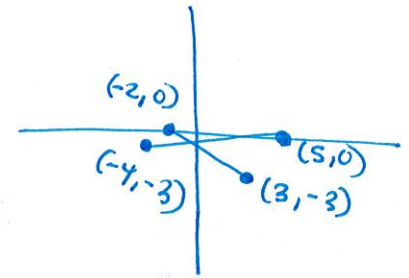
2. The center of a circle is at $Q(0, 6)$. A radius is drawn from Q to $P(4, 6)$. What are the coordinates of the endpoint of the diameter that includes segment PQ ?

- A. $(0, 2)$
 B. $(0, 10)$
 C. $(-4, 6)$
 D. $(6, -4)$



3. A parallelogram has vertices $(5, 0)$, $(3, -3)$, $(-4, -3)$, and $(-2, 0)$. The diagonals of the parallelogram intersect at their midpoints. What are the coordinates of the intersection of the diagonals?

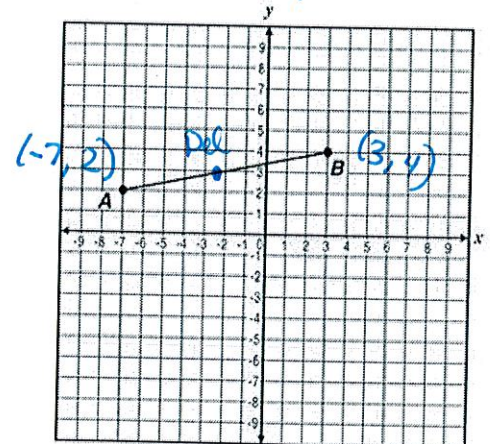
- A. $(-0.5, -3)$ $(\frac{-2+3}{2}, \frac{0+(-3)}{2})$
 B. $(0.5, -1.5)$ $(\frac{1}{2}, -\frac{3}{2})$
 C. $(1.5, 0)$
 D. $(4, -1.5)$



4. On the grid below, \overline{AB} represents Canal Street. Point A represents the location of Doug's Market and Point B represents the location of Hamel's BBQ.

If Delicious Donuts is located on Canal Street midway between Doug's Market and Hamel's BBQ, which coordinate pair best represents the location of Delicious Donuts?

midpoint of $(-7, 2), (3, 4)$
 $(\frac{-7+3}{2}, \frac{2+4}{2})$



- A. $(-2, 3)$ $(-2, 3)$
 B. $(2, -3)$
 C. $(2, 3)$
 D. $(5, 3)$

5. A rectangle drawn on the coordinate plane has vertices at $(4, 4)$, $(1, 8)$, $(-7, 2)$, and $(-4, -2)$.

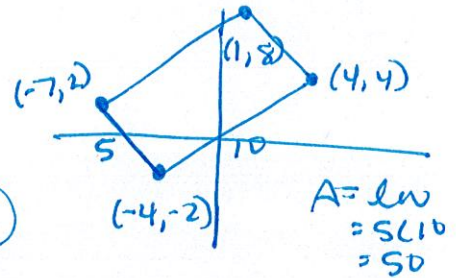
What is the area, in square units, of the rectangle?

A. 24 $\text{dist } (-7, 2)(-4, -2) = \sqrt{3^2 + 4^2}$
 $= \sqrt{9 + 16}$
 $= 5$

B. 30 $\text{dist } (-4, -2)(4, 4) = \sqrt{8^2 + 6^2}$
 $= \sqrt{64 + 36} = 10$

C. 44

D. 50

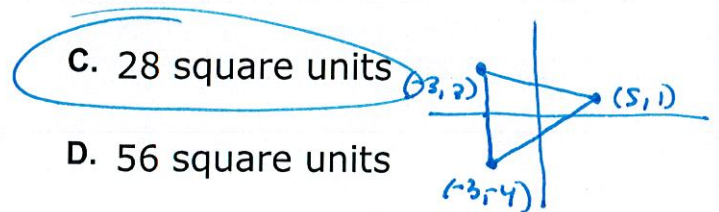


6. What is the area of the triangle whose vertices are located at $(-3, 3)$, $(5, 1)$, and $(-3, -4)$?

A. 14 square units

B. 25 square units

See graph paper @ end.



7. The coordinates of the vertices of a square are $(2, 10)$, $(8, 4)$, $(2, -2)$, and $(-4, 4)$. What is the area of the square?

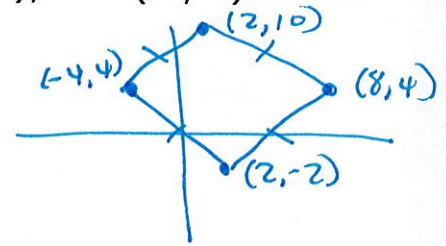
A. 8.5 units²

B. 33.9 units²

C. 36 units²

D. 72 units²

$\text{dist } (2, 10), (-4, 4)$
 $= \sqrt{6^2 + 6^2}$ Area
 $= \sqrt{2 \cdot 6^2} = (6\sqrt{2})^2$
 $= 36 \cdot 2 = 72$



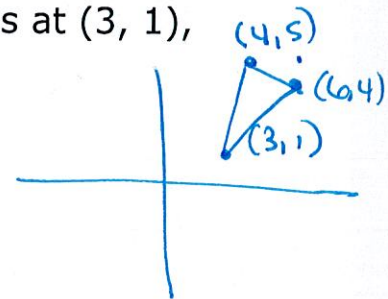
8. What is the **approximate** perimeter of a triangle with vertices at $(3, 1)$, $(4, 5)$, and $(6, 4)$?

A. 6.3 units $\sqrt{3^2 + 3^2} = \sqrt{18}$

B. 10.6 units $\sqrt{1^2 + 4^2} = \sqrt{17}$
 $\sqrt{2^2 + 1^2} = \sqrt{5}$
 $\sqrt{18} + \sqrt{5} + \sqrt{17} \approx 10.6$

C. 18.0 units

D. 40.0 units



9. What is the area of a triangle with vertices at $(1, 4)$, $(5, 1)$, and $(8, 5)$?

A. 12.5 units²

B. 17.5 units²

C. 25 units²

D. 35 units²

See graph paper @ end.

10. The vertices of a triangle are $(4, 3)$, $(8, 4)$, and $(4, 10)$. What is the **approximate** perimeter of the triangle?

A. 14 units $\sqrt{0^2 + 7^2} = 7$

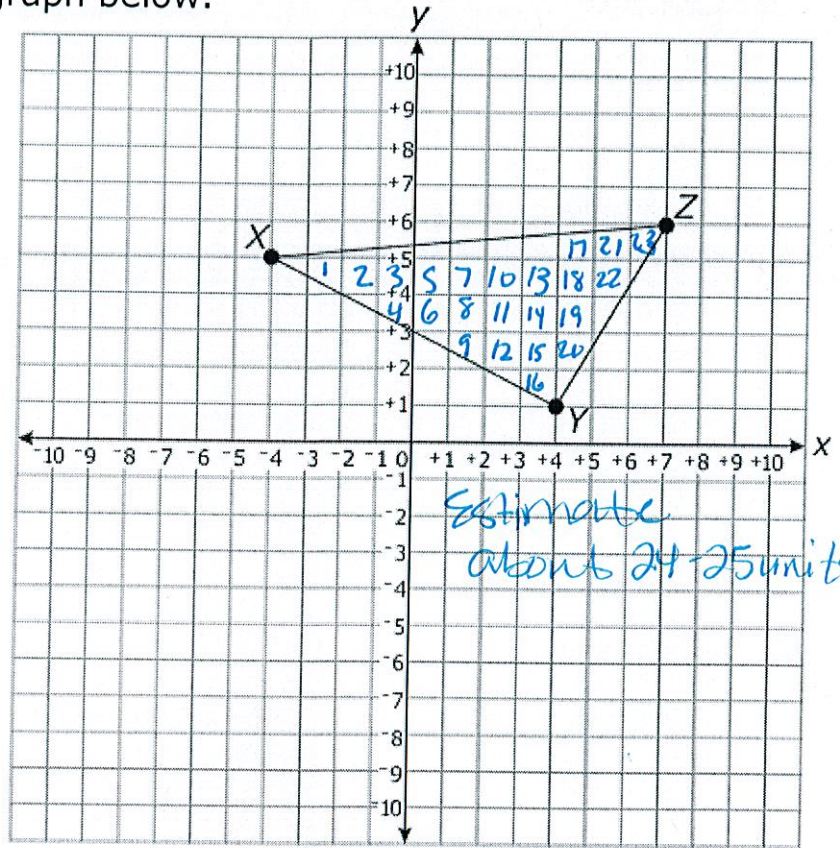
B. 18 units $\sqrt{4^2 + 1^2} = \sqrt{17}$
 $\sqrt{4^2 + 6^2} = \sqrt{16 + 36} = \sqrt{52}$
 $7 + \sqrt{52} + \sqrt{17} \approx 18.3$

C. 22 units

D. 33 units

11. Triangle XYZ is shown on the graph below.

What is the **approximate** area of triangle XYZ?



A. 20 units²

B. 26 units²

C. 40 units²

D. 52 units²

12. A triangle has vertices at (1, 3), (2, -3), and (-1, -1). What is the **approximate** perimeter of the triangle?

A. 10 $\sqrt{2^2+4^2} = \sqrt{20}$ $(1, 3)$ $\sqrt{1^2+6^2} = \sqrt{37}$ $(2, -3)$ $\sqrt{20} + \sqrt{37} + \sqrt{13}$ ≈ 14.16
 B. 14 $(-1, -1)$ $\sqrt{3^2+2^2} = \sqrt{13}$
 C. 15
 D. 16

13. A figure has vertices at (2, 5), (4, 3), (5, 4), and (3, 6). Which most precisely describes the figure?

A. parallelogram $\text{Midpoint } (\frac{7}{2}, \frac{9}{2})$ $BD \rightarrow \frac{3}{-1}$ $AC \rightarrow \frac{-1}{3}$ FAIL
 B. rectangle $\text{Slope of Diagonals}$ $\text{Dist } (3,6)(4,3) = \sqrt{1^2+3^2} = \sqrt{10}$ $(2,5)(5,4) = \sqrt{3^2+1^2} = \sqrt{10}$ \checkmark
 C. rhombus $\checkmark \text{ Rectangle}$
 D. square $\checkmark \text{ Rectangle}$

14. Right triangle JKL has vertices located at J(4, 3) and K(2, -2). Which could be the coordinates of point L?

A. (0, 3) $\text{see graph paper @ end.}$
 B. (0, 0)
 C. (-1, 0)
 D. (-3, 0)

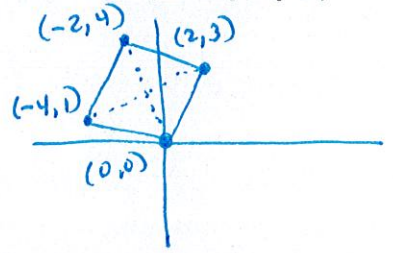
15. Which term **best** describes the shape that has vertices at (0, 0), (2, 3), (-2, 4), and (-4, 1)?

A. parallelogram

B. rhombus

C. rectangle

D. square



① Diagonals bisect? ✓
 $(-\frac{2}{2}, \frac{4}{2}) \rightarrow (-1, 2)$ ✓
 $(\frac{0}{2}, \frac{1}{2}) \rightarrow (-1, 2)$ ✓
 ② Diagonals \cong ? X
 $\sqrt{4^2+2^2} \neq \sqrt{2^2+6^2}$
 ③ \perp diagonals? X
 $m = \frac{4}{-2} = -2$
 $m = \frac{2}{6} = \frac{1}{3}$

16. Three vertices of a rectangle are located at (-5, 3), (1, -1), and (-1, -4). What are the coordinates of the fourth vertex of the rectangle?

A. (-7, 0)

B. (-6, 0)

C. (-6, -1)

D. (-5, 1)

See graph paper

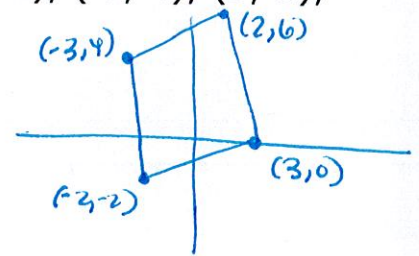
17. Which **best** describes the quadrilateral with vertices (-2, -2), (-3, 4), (3, 0), and (2, 6)?

A. parallelogram

B. rectangle

C. rhombus

D. square



① Diagonals bisect? ✓
 $(\frac{0}{2}, \frac{4}{2}) (\frac{0}{2}, \frac{4}{2})$ ✓
 ② Diagonals \cong ? X
 $\sqrt{6^2+4^2} \neq \sqrt{8^2+4^2}$
 ③ Diagonals \perp ? X
 $m = \frac{3}{4} = 2$ $m = \frac{-4}{6}$

18. Triangle PQR has vertices located at (2, 2), (5, -4), and (-4, -1). What type of triangle is triangle PQR?

A. equilateral

B. isosceles

C. obtuse

D. scalene

$\sqrt{6^2+3^2}$
 $(2, 2)$
 $(5, -4)$
 $(-4, -1)$
 $\sqrt{3^2+6^2}$
 $\sqrt{9^2+3^2}$
 2 sides \cong

19. A triangle has the vertices (-5, -1), (-2, -3), and (-5, -4). Which term describes the triangle?

A. equilateral triangle

B. scalene triangle

C. right triangle

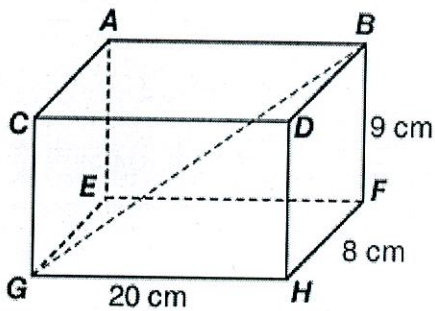
D. isosceles triangle

$\sqrt{0^2+3^2} = 3$
 $(-5, -1)$
 $(-2, -3)$
 $(-5, -4)$
 $\sqrt{3^2+2^2} = \sqrt{13}$
 $\sqrt{3^2+1^2} = \sqrt{10}$

$a^2 + b^2 > c^2$
 $3^2 + 10^2 > \sqrt{13}^2$
 $9 + 10 > 13$

20.

What is the approximate length of \overline{BG} in the right rectangular prism below?



$$d = \sqrt{l^2 + w^2 + h^2}$$

$$= \sqrt{20^2 + 8^2 + 9^2}$$

$$= \sqrt{545}$$

$$\approx 23.35$$

A. 16.0 cm

B. 21.5 cm

C. 23.3 cm

D. 26.2 cm

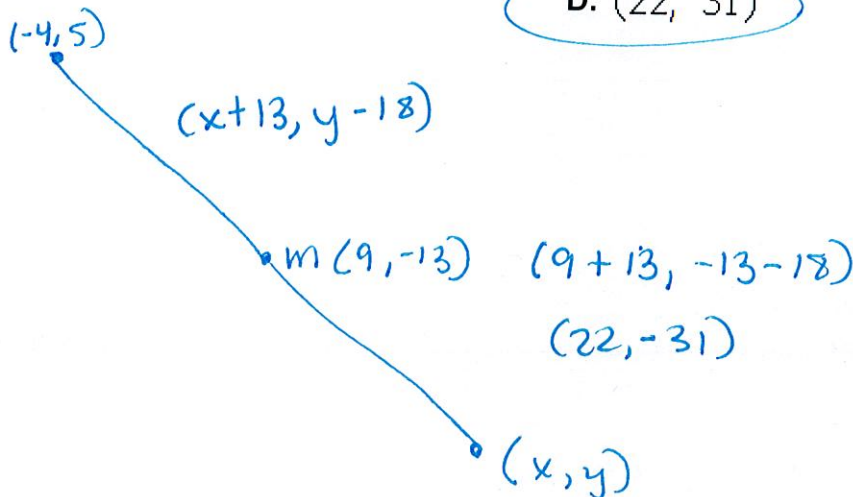
21. The coordinates of the midpoint of a line segment are $(9, -13)$. The coordinates of an endpoint of the segment are $(-4, 5)$. What are the coordinates of the other endpoint?

A. $(-2, \frac{1}{2})$

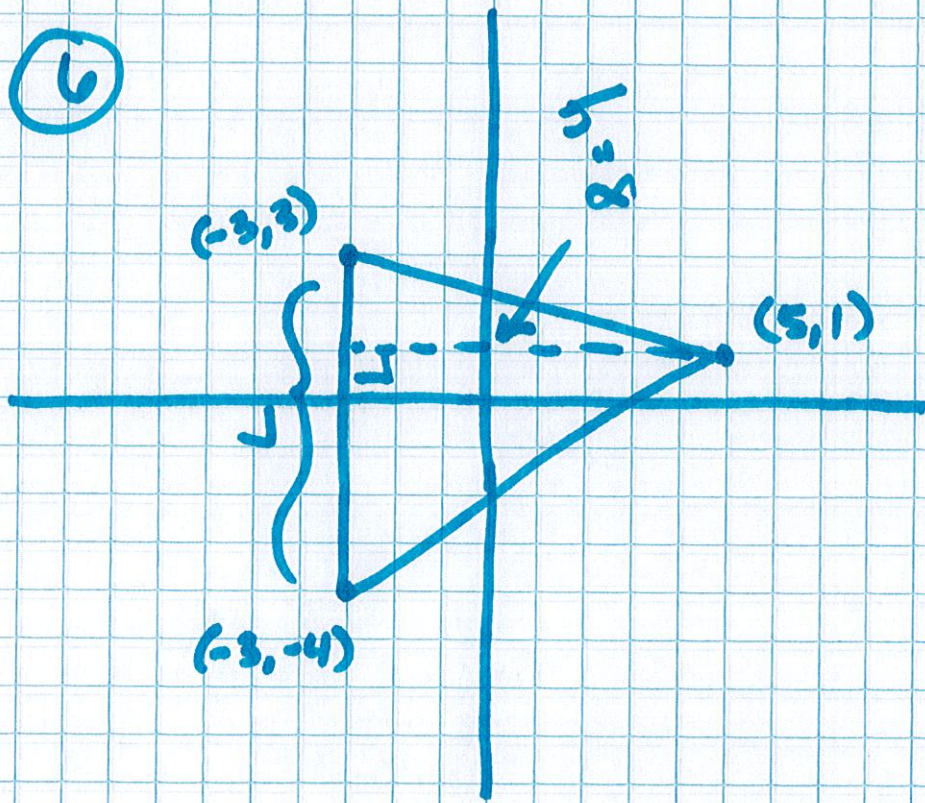
B. $(\frac{5}{2}, -4)$

C. $(14, -21)$

D. $(22, -31)$



6

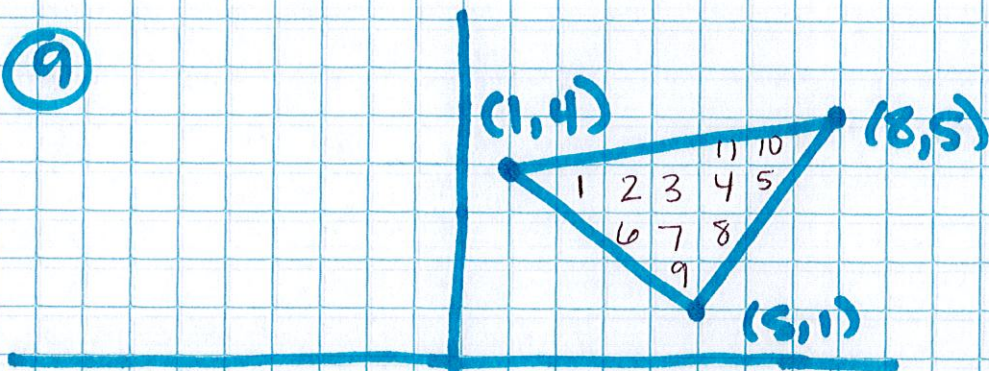


$$A = \frac{1}{2}bh$$

$$= \frac{1}{2} \times 7 \times 8$$

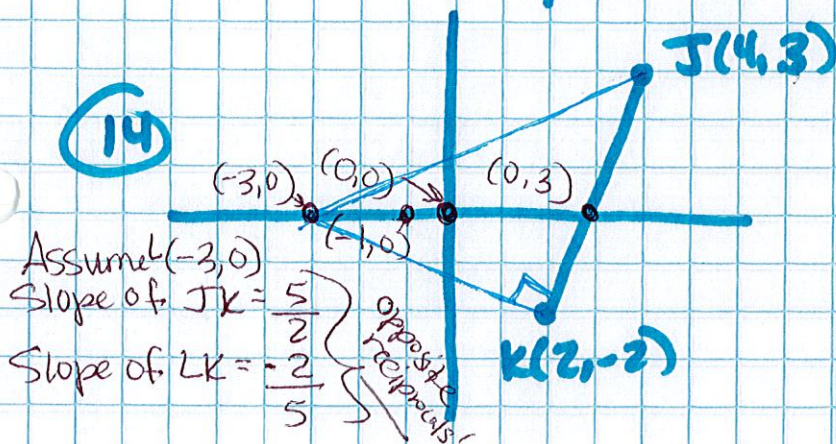
$$= 28 \text{ units}^2$$

9



Estimate about
12 units.

14



Assume $L(-3, 0)$
Slope of JK = $\frac{5}{2}$

Slope of LK = $-\frac{2}{5}$

opposite
reciprocals!

Assume $L(0, 0)$

Slope of JL = $\frac{3}{4}$ } not opposite reciprocals

Slope of KL = $-\frac{2}{2} = -1$ }

Assume $L(-1, 0)$

Slope of JL = $\frac{3}{5}$ } not opposite reciprocals

Slope of KL = $-\frac{2}{3}$ }

⑥

