

Unit 1 Study Guide

Name Key S _____

Use points $P(2, -1)$ & $Q(-9, -6)$ for #1 & 2.

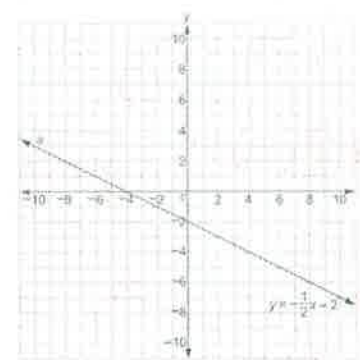
1) What coordinate point partitions the directed line segment \overline{PQ} by a ratio $\frac{3}{2}$?

$\frac{3}{5}(-11, -5)$
 $[-6.6, -3]$
 $(-6.6, -3)$ distance
 $(2, -1)$ start point
 $(-4.6, -4)$

2) What coordinate point partitions the directed line segment \overline{QP} by a ratio $\frac{2}{3}$?

$\frac{2}{5}(11, 5)$
 $[4.4, 2]$
 $-9, -6$
 $(-4.6, -4)$

3) An equation of a line a is $y = -\frac{1}{2}x - 2$. See graph.



What is the equation of the line that is perpendicular to line a shown on the graph and passes through point $(-4, 0)$.

$y = -\frac{1}{2}x - 2$
 Perp $y = \frac{2}{1}x + b$
 Plug in point $\rightarrow 0 = 2(-4) + b$
 $0 = -8 + b$
 $b = 8$
 $y = 2x + 8$

Parallelogram $ABCD$ at right has vertices as shown.

4) What is the perimeter of $ABCD$?

$6 + 6 + 4.47 + 4.47 = 20.94$

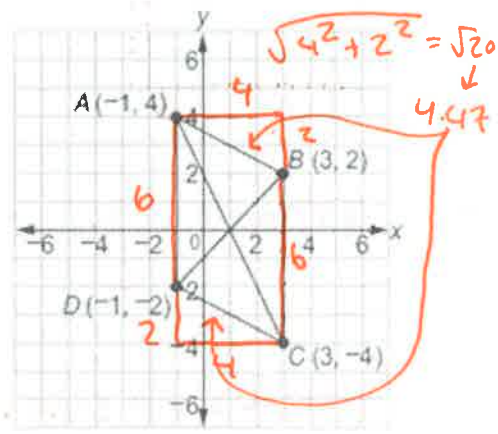
5) What is the length of each diagonal?

$B_1 = \sqrt{8^2 + 4^2} = \sqrt{80} = 4\sqrt{5}$
 8.94

$S_{m_2} = \sqrt{4^2 + 4^2} = \sqrt{32} = 4\sqrt{2}$
 5.66

6) What is the area of the parallelogram? Area = bh

$6 \cdot 4 = 24$



Big diag Rise = 8 Run = 4

Small diag Rise = 4 Run = 4

Write the equation of the lines below in slope-intercept form: $y = mx + b$.

7) Through $(-4, 5)$ and parallel to $y = -\frac{3}{2}x - 5$.

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

$$5 = -\frac{3}{2}(-4) + b$$

$$y = -\frac{3}{2}x - 1$$

$$5 = 6 + b$$

$$-6 \quad -6$$

$$b = -1$$

8) Through $(4, 1)$ and perpendicular to $y = -2x - 2$

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

$$1 = \frac{1}{2}(4) + b$$

$$1 = 2 + b$$

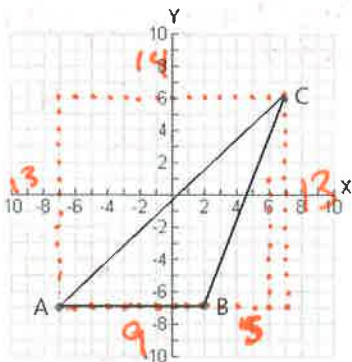
$$-2 \quad -2$$

$$-1 = b$$

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

Find the area and perimeter of the following triangle. Simplest form required. Reminder: Draw altitude to find height.

9) Area = 58.5 Perimeter = 42



$$\text{Area} = \frac{b \cdot h}{2} \rightarrow \frac{9 \cdot 13}{2}$$

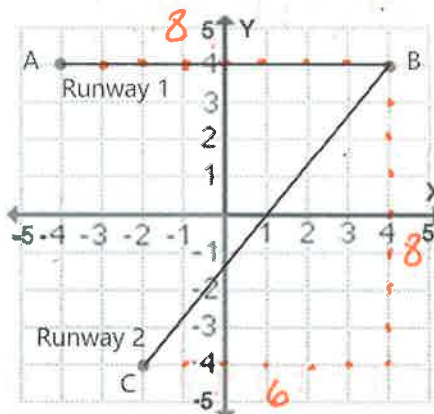
Perimeter = side 1 + side 2 + side 3

$$9 + \sqrt{(5)^2 + (13)^2} + \sqrt{(13)^2 + (14)^2}$$

$$9 + 13.9 + 19.1$$

In the diagram, two runways intersect at point B. Each square is 200 x 200 yards square. If you walked from A to B and then to C, how far did you walk?

10) 3600 yards



$$\overline{AB} = 8$$

$$\overline{BC} = \sqrt{(8)^2 + (6)^2} = 10$$

$$\overline{AB} \rightarrow \overline{BC} = 10 + 8$$

$$\downarrow$$

$$\text{Add } 18$$

18 squares = 200 yards

3600 yards