Name **Key** Date _____ Pd __

☑ Use when you get it right all by yourself

S Use when you did it all by yourself, but made a silly mistake

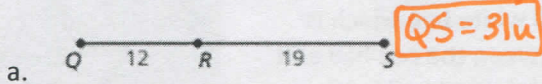**H** Use when you could do it alone with a little help from teacher or peer

G Use when you completed the problem in a group
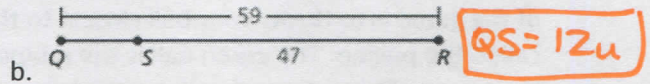
X Use when a question was attempted but wrong (get help)

N Use when a question was not even attempted

CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
Segment Addition Postulate	1a	1b	
Midpoint Formula	2	3	10
Distance Formula	2		9, 10
Collinear & Coplanar	4a		
Lines, points, planes, rays, segments	4b, 4c, 4d		8
Perimeter & Area		5	9
Complementary & Supplementary Angles	6	6	
Classifying angles: acute, right, obtuse, straight		7	

1. Find the length of $\overline{QS}$. Explain how you found your answer or show your thought process.

a. $QS = 31u$

$QR + RS = QS \Rightarrow 12 + 19 = 31$

b. $QS = 12u$

$QS + SR = QR \Rightarrow x + 47 = 59$

2. Find the coordinates of the midpoint M. Then find the distance between the two points.

a. A(- 4, - 8) & B(- 1, 4)

$M = \left(\frac{-4-1}{2}, \frac{-8+4}{2}\right) = \left(-\frac{5}{2}, -2\right)$

$d = \sqrt{(-4+1)^2 + (-8-4)^2} = \sqrt{(-3)^2 + (-12)^2}$

$d = \sqrt{153}$

b. C(- 1, 7) & D(- 8, - 3)

$M = \left(\frac{-1-8}{2}, \frac{7-3}{2}\right) = \left(-\frac{9}{2}, 2\right)$

$d = \sqrt{(-1+8)^2 + (7+3)^2} = \sqrt{(7)^2 + (10)^2} = \sqrt{149}$

3. The midpoint of $\overline{EF}$ is M(1, - 1). One endpoint is E(- 3, 2). Find the coordinates of endpoint F.

E $(-3, 2)$ +4 M $(1, -1)$ +4 $(5, -4)$

$F (5, -4)$

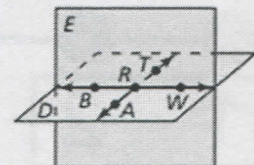4. Use the diagram provided to decide whether the statement is true or false. WRITE OUT THE ENTIRE WORD!!
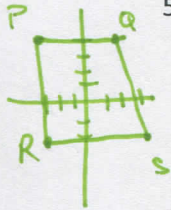
a. Points A, R, and B are collinear. False, coplanar

b. $\overleftrightarrow{BW}$ & $\overleftrightarrow{AT}$ are lines. True ⟷

c. $\overrightarrow{BR}$ & $\overrightarrow{RT}$ are opposite rays. False, ⟶ not ⟷

d. Plane D could also be named plane ART. False, ART are colinear. Plane BRA
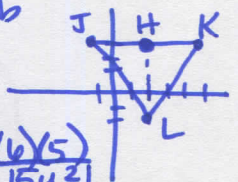
$PQ = b_1$ $h = PR$
$RS = b_2$

$LH = 5u$

5. Find the perimeter and area of the polygon with the given vertices. Explain your thought process or show your algebraic work. $P = 16 + \sqrt{40}u$

a. P(- 3, 4), Q(1, 4), R(- 3, - 2), S(3, - 2)

PQRS is a trapezoid $A = \frac{1}{2}(6)(4+6)$
PQ = 4u   RS = 6u $= \boxed{30u^2}$
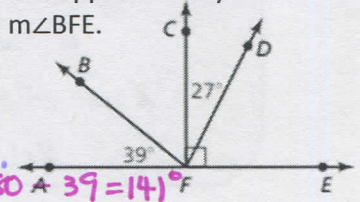PR = 6u $QS = \sqrt{(1-3)^2 + (4+2)^2} = \sqrt{40}$

b. J(- 1, 3), K(5, 3), L(2, - 2) $P = \boxed{6 + 2\sqrt{34}\,u}$ LH = h   JK = b

△JKL is isosceles $\overline{KL} \cong \overline{JL}$
JK = 6u
$KL = \sqrt{(5-2)^2 + (3+2)^2} = \sqrt{34}$ $A = \frac{1}{2}(6)(5)$
$JL = \sqrt{(-1-2)^2 + (3+2)^2} = \sqrt{34}$ $= \boxed{15u^2}$

6. In the diagram, ∠AFE is a straight angle and ∠CFE is a right angle. Identify all supplementary and complementary angles. Explain in words. Then find m∠ DFE, m∠BFC, and m∠BFE.

Supplementary ∢'s : ∠AFB ≬ ∠BFE; ∠AFC ≬ ∠CFE; ∠EFD ≬ ∠DFA
Complementary ∢'s : ∠EFD ≬ ∠DFC; ∠CFB ≬ ∠BFA
Supp. ∢'s form a linear pair ≬ compl. ∢'s form a right ∢.
m∠DFE = 90 - 27 = 63°   m∠BFC = 90 - 39 = 51°   m∠BFE = 180 - 39 = 141°

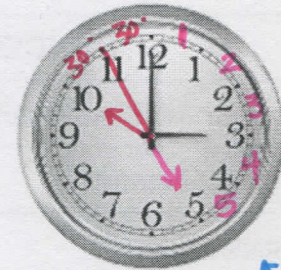**7.** Use the clock provided to answer the following questions.

a. What is the measure of the acute angle created when the clock is at 10:00?   60°

$\frac{360°}{12} = 30°$

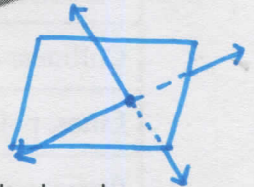b. What is the measure of the obtuse angle created when the clock is at 5:00?   5(30°) = 150°

c. Find a time where the hour and minute hands create a straight angle.   6:00; ⟷ 3:45 or 9:15; ↕ 12:30
more possible answers

8. Sketch a figure that contains a plane and two lines that intersect the plane at one point.
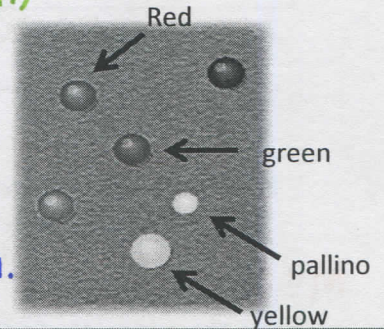
more answers possible

9. Your friends' parents decide they would like to install a rectangular swimming pool in the backyard. There is a 15-foot by 20-foot rectangular area available. The parents request a 3-foot edge around each side of the pool. Draw a diagram of this situation in a coordinate plane. What is the perimeter and area of the largest swimming pool that will fit? $A = 126\ ft^2$ $P = 46\ ft$

A(0,0); B(15, 0); C(15,20); D(0,20); E(3,3); F(12,3); G(12,17); H(3,17)

10. The picture shows the arrangement of balls in a game of boccie. The object of the game is to throw your ball closest to the small white ball which is called the pallino. The green ball is the midpoint between the red ball and the pallino. The distance between the green ball and the red ball is 10 inches. The distance between the yellow ball and tha pallino is 8 unches. Which ball is closer to the pallino, the green ball or the yellow ball? Explain in words or showing mathematical work.   yellow

Green is the midpt between red ≬ pallino. So green is 10 in.
Yellow to pallino is 8 in.

Red
green
pallino
yellow

CYU Reflection: *How far can you go: basic, intermediate, or advanced?*
Rate your mastery level!
How confident are you with the skills this CYU covered? Circle the score you would give yourself.

| 1   2 | 3   4   5 | 6   7 | 8 |
| Basic | Intermediate | Advanced | Solved ALL! |