REVIEW (Sections 18.2, 27.1, Simplifying Radicals)   Date _____ Period _____

Find the distance between each pair of points. Leave your answers in _exact form_.

1) $(6, -6), (3, -4)$ $\sqrt{13}$

2) $(-4, -5), (-3, 2)$ $5\sqrt{2}$

3) $(-8, -2), (0, -4)$ $2\sqrt{17}$

4) $(-1, -2), (-7, 3)$

Find the midpoint of the line segment with the given endpoints.

5) $(-6, -5), (-2, 0)$ $\left(-4, -2\frac{1}{2}\right)$

6) $(1, 0), (-3, 7)$ $\left(-1, 3\frac{1}{2}\right)$

7) $(-9, -2), (-9, -10)$ $(-9, -6)$

8) $(-3, -9), (-9, 10)$ $\left(-6, \frac{1}{2}\right)$

Given the midpoint and one endpoint of a line segment, find the other endpoint.

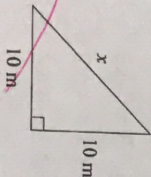9) Endpoint: $(7, -7)$, midpoint: $(-4, 7)$

$(-15, 21)$

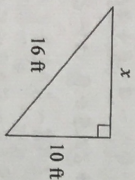10) Endpoint: $(4, -3)$, midpoint: $(-10, -3)$

$(-24, -3)$

Find the missing side of each triangle. Leave your answers in simplest radical form. Then approximate your answer to the nearest _tenth_.

11)

$10\sqrt{2} = 14.1$

12)

$2\sqrt{39} = 12.5$

Find the missing side of each right triangle. Side _c_ is the hypotenuse. Sides _a_ and _b_ are the legs. Leave your answers in simplest radical form.

13) $a = 6$ m, $b = 12$ m $6\sqrt{5}$

14) $a = 11$ km, $c = 13$ km $4\sqrt{3}$

State if the three sides lengths form a right triangle. Show work to justify your answers.
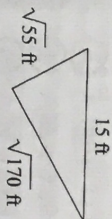
15) 10 mi, $2\sqrt{11}$ mi, 12 mi
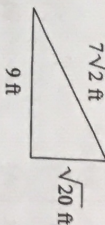
Yes

16) 12 km, $4\sqrt{3}$ km, 13 km

No

State if each triangle is acute, obtuse, or right.
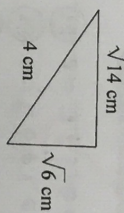
17)

Right

18)

Acute

19)

Acute

20)
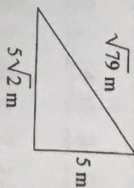
Obtuse

Simplify.

21) $-3\sqrt{45} + 2\sqrt{20} + 3\sqrt{5}$

$-2\sqrt{5}$

22) $-\sqrt{6} + 2\sqrt{27} + 3\sqrt{3}$

$-\sqrt{6} + 9\sqrt{3}$

23) $\sqrt{10} \cdot \sqrt{10}$

10

24) $5\sqrt{3} \cdot \sqrt{15}$

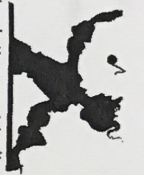$15\sqrt{5}$

25) $\sqrt{15} \cdot -5\sqrt{6}$

$-15\sqrt{10}$

26) $3\sqrt{10} \cdot -5\sqrt{5}$

$-75\sqrt{2}$

27) Review Finding the perimeter and area using the Distance Formula. Go back over all notes and assignments.

What Should You Do If Nobody Will Sing With You?

Simplify each expression. Find your answer below the exercise and notice the letter next to it. Write this letter in the box at the bottom of the page that contains the number of that exercise.

(1) $2\sqrt{5} + 4\sqrt{5}$ T

(2) $7\sqrt{3} - 3\sqrt{3}$ E

(3) $2\sqrt{6} - 7\sqrt{6}$ U

(4) $5\sqrt{x} + \sqrt{x}$ I

(5) $9\sqrt{5} - 8\sqrt{5}$ A

(6) $5\sqrt{10} + 4\sqrt{10} - \sqrt{10}$ E

(7) $2\sqrt{3} - 6\sqrt{3} - 3\sqrt{3}$ T

(8) $6\sqrt{7} + 3\sqrt{3} - 2\sqrt{7}$ F

(9) $\sqrt{2} - 4\sqrt{6} + 5\sqrt{2} + \sqrt{6}$ Y

(10) $3\sqrt{a} + 9\sqrt{b} - \sqrt{b} - 2\sqrt{a}$ R

(L) $4\sqrt{5}$ (E) $4\sqrt{3}$

(I) $6\sqrt{x}$ (R) $3\sqrt{x}$

(T) $6\sqrt{5}$ (N) $6\sqrt{3}$

(A) $\sqrt{5}$ (U) $-5\sqrt{6}$

(H) $8\sqrt{3}$ (S) $4\sqrt{2} - \sqrt{6}$

(E) $8\sqrt{10}$ (F) $4\sqrt{7} + 3\sqrt{3}$

(R) $\sqrt{a} + 8\sqrt{b}$ (A) $3\sqrt{a} + 7\sqrt{b}$

(T) $-7\sqrt{3}$ (Y) $6\sqrt{2} - 3\sqrt{6}$

---

(11) $3\sqrt{12} + 4\sqrt{3}$ E

(12) $8\sqrt{5} - 2\sqrt{45}$ T

(13) $7\sqrt{18} + 2\sqrt{50}$ O

(14) $6\sqrt{24} - 5\sqrt{54}$ R

(15) $-\sqrt{27} + 4\sqrt{48}$ N

(16) $5\sqrt{8} + \sqrt{98} - 2\sqrt{18}$ L

(17) $2\sqrt{90} - 3\sqrt{20} + \sqrt{40}$ D

(18) $4\sqrt{63} - 9\sqrt{28} + 2\sqrt{44}$ S

(19) $2\sqrt{27x} + \sqrt{75x} + 5\sqrt{12x}$ K

(20) $-6\sqrt{9x} + 3\sqrt{64x} - \sqrt{50x}$ U

(R) $-3\sqrt{6}$ (E) $10\sqrt{3}$

(S) $-4\sqrt{3}$ (L) $2\sqrt{6}$

(T) $2\sqrt{5}$ (N) $13\sqrt{3}$

(E) $24\sqrt{2}$ (O) $31\sqrt{2}$

(B) $8\sqrt{3x}$ (U) $6\sqrt{x} - 5\sqrt{2x}$

(L) $11\sqrt{2}$ (S) $-6\sqrt{7} + 4\sqrt{11}$

(S) $\sqrt{10} - 9\sqrt{5}$ (D) $8\sqrt{10} - 6\sqrt{5}$

(K) $21\sqrt{3x}$ (P) $3\sqrt{7} + \sqrt{11}$

R	E	N	T	A	D	U	E	T	Y	O	U	R	S	E	L	F	K	I	T
10	2	15	7	5	17	20	11	1	9	13	3	14	18	6	16	8	19	4	12

OBJECTIVE 3-j: To simplify sums and differences of radicals.

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What Is the Title of This Picture?

For each exercise below, find the missing length. (Refer to the diagram at the right.) Find your answer in the answer column and notice the letter next to it. Each time the exercise number appears in the code, write this letter above it. Keep working and you will decode the title of the picture.
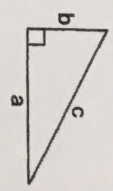
(1) $a = 8, b = 6, c = \sqrt{100}$

(2) $a = 4, b = 9, c = \sqrt{97}$

(3) $a = 12, b = 12, c = \sqrt{288}$

(4) $a = 7, b = \sqrt{20}, c = \sqrt{69}$

(5) $a = \sqrt{175}, b = 15, c = \sqrt{400}$

(6) $a = \sqrt{75}, b = 5, c = 10$

(7) $a = 12, b = \sqrt{25}, c = 13$

(8) $a = \sqrt{140}, b = \sqrt{56}, c = 14$

(9) $a = 1.5, b = \sqrt{4}, c = 2.5$

(10) $a = \sqrt{85}, b = \sqrt{59}, c = \sqrt{144}$

(11) $a = \sqrt{34}, b = 6, c = \sqrt{70}$

(12) $a = 40, b = \sqrt{81}, c = 41$

(13) $a = 1, b = 1, c = \sqrt{3}$

(14) $a = \sqrt{1}, b = \sqrt{2}, c = \sqrt{3}$
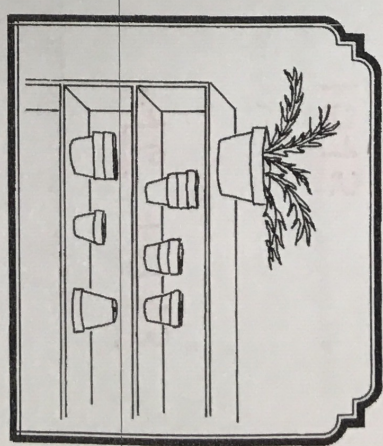
CODED TITLE:

11 14 5 10 8 5 11 4 13 2 14 6

14 13 1 14 12 3 2 13 7 9 11 5

(E) $\sqrt{400} = 20$ (P) $\sqrt{81} = 9$ (N) $\sqrt{25} = 5$

(R) $\sqrt{67} \doteq 8.19$ (G) $\sqrt{100} = 10$ (I) $\sqrt{2} \doteq 1.41$

(S) $\sqrt{34} \doteq 5.83$ (O) $\sqrt{288} \doteq 16.97$ (W) $\sqrt{69} \doteq 8.31$

(T) $\sqrt{97} \doteq 9.85$ (L) $\sqrt{144} = 12$ (U) $\sqrt{4} = 2$

(V) $\sqrt{140} \doteq 11.83$ (H) $\sqrt{1} = 1$ (A) $\sqrt{75} \doteq 8.66$

OBJECTIVE 3-e: To find the length of a side of a right triangle using the Pythagorean property.

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Partitioning a Segment Worksheet
Geometry
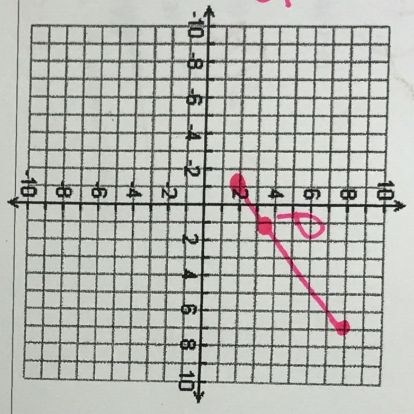
Name _____

Date _____ Period _____

Answer the following questions and show all work!

1. Given the points A(-1, 2) and B(7, 8), find the coordinates of the point P on the directed line segment $\overline{AB}$ that partitions $\overline{AB}$ in the ratio 1:3. Plot P along with segment AB.

$X: (7+1)(\frac{1}{4})-1 = 2-1 = 1$

$y: (8-2)(\frac{1}{4})+2 = \frac{3}{2}+2 = 3.5$

(coordinate grid from -10 to 10 on both axes with segment AB and point P plotted)

2. Find the coordinates of P so that P partitions $\overline{AB}$ in the ratio 5:1 with A(2, 4) and B(8, 10).

$x: (8-2)(\frac{5}{6})+2 = 6(\frac{5}{6})+2 = 7$

$y: (10-4)(\frac{5}{6})+4 = 6(\frac{5}{6})+4 = 10$

3. Find the coordinates of P so that P partitions $\overline{AB}$ in the ratio 1 to 3 with A(-5, 4) and B(7, -4).

$x: (7+5)(\frac{1}{4})-5 = 12(\frac{1}{4})-5 = -2$

$y: (-4-4)(\frac{1}{4})+4 = -8(\frac{1}{4})+4 = 2$

4. Find the coordinates of P so that P partitions $\overline{AB}$ in the ratio 3:4 with A(-9, -9) and B(5, -2).

$x: (5+9)(\frac{3}{7})-9 = 14(\frac{3}{7})-9 = -3$

$y: (-2+9)(\frac{3}{7})-9 = 7(\frac{3}{7})-9 = -6$

5. Find the coordinates of P so that P partitions $\overline{AB}$ in the ratio $\frac{2}{5}$ if A(-8, -2) and B(6, 19).

$x: (6+8)(\frac{2}{7})-8 = 14(\frac{2}{7})-8 = -4$

$y: (19+2)(\frac{2}{7})-2 = 21(\frac{2}{7})-2 = 4$

6. If A(4, 1) and B(-3, 0), find the point that divides $\overline{AB}$ two-thirds of the way from A to B.

$x: (-3-4)(\frac{2}{3})+4 = -7(\frac{2}{3})+4 = -\frac{2}{3}$

$y: (0-1)(\frac{2}{3})+1 = -1(\frac{2}{3})+1 = \frac{1}{3}$

7. For the directed line segment whose endpoints are (0, 0) and (4, 3), find the coordinates of the point that partitions the segment into a ratio of 3 to 2.
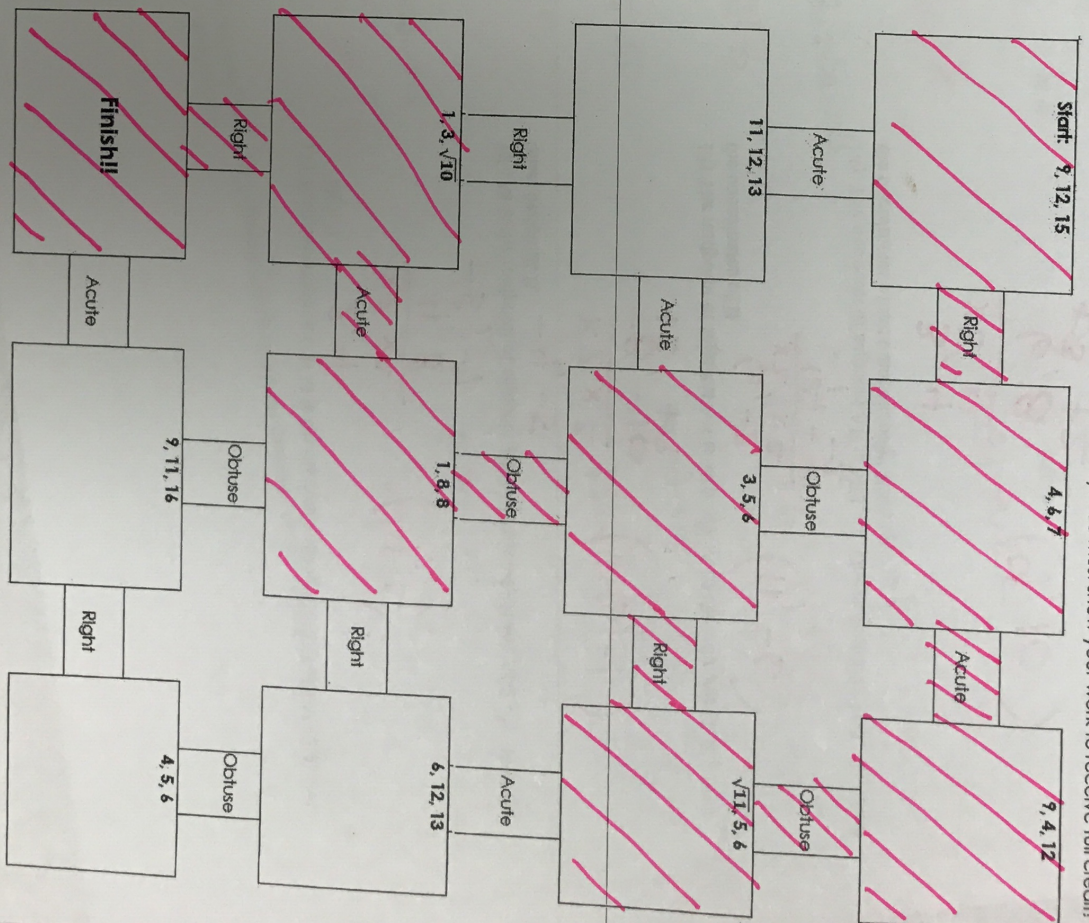
$x: (4-0)(\frac{3}{5})+0 = 4(\frac{3}{5}) = \frac{12}{5}$

$y: (3-0)(\frac{3}{5})+0 = 3(\frac{3}{5}) = \frac{9}{5}$

Converse of the Pythagorean Theorem Maze

Name: _____

Directions: Determine if the lengths shown create an acute, obtuse, or right triangle. Follow the correct directions to complete the maze correctly. You must show your work to receive full credit!

Start: 9, 12, 15

Box	Value
Start	9, 12, 15
	4, 6, 7
	9, 4, 12
	11, 12, 13
	3, 5, 6
	$\sqrt{11}$, 5, 6
	1, 3, $\sqrt{10}$
	1, 8, 8
	6, 12, 13
	9, 11, 16
	4, 5, 6

Labels: Right, Acute, Obtuse, Acute, Obtuse, Right, Acute, Obtuse, Right, Acute, Obtuse, Right, Acute, Obtuse, Right

Finish!!

Worksheet 1-8 Distance and Midpoint

Use the distance formula or Pythagorean Theorem to find the distance of segment CD.

1) C (-3, 4), D(0, -1)

$\sqrt{34}$

2) C(-1,8), D(4,-3)

$\sqrt{146}$

3) C (16, 7), D(12,-3)

$2\sqrt{29}$

4) C(4, -1), D(-8,-6)

13

5) C (5, 10), D(5,-4)

14

6) C(5, -3), D(-7, 2)

13

Find the coordinates of the midpoint of segment AB.

7) A(3,-4), B(-3,0)

$(0, -2)$

8) (-2,1), B(5,3)

$\left(\dfrac{3}{2}, 2\right)$

9) A(3,-6), B(-9, 2)

$(-3,-2)$

10) A(13,-6) B(-3,-2)

$(5, -4)$

11) Find the endpoint C if M is the midpoint of segment CD and M (2,4) and D(5,7).

$$\dfrac{2,4}{\begin{array}{c} x2 \ x2 \\ 4,8 \\ -5,-7 \end{array}}$$

$(-1, 1)$

12) M is the midpoint of segment AB and M is (-4,-5) and A(-2,-9). Find the other endpoint B. -4,-5

$$\dfrac{x2 \ x2}{\begin{array}{c} -8, -10 \\ +2 \quad +9 \end{array}}$$

$(-6, -1)$

13) The midpoint of segment AB is M(6, -2). A has coordinates (1, 2). Find the coordinates of B.

$$\dfrac{6, -2}{\begin{array}{c} x2, \ x2 \\ 12, -4 \\ -1 \quad -2 \end{array}}$$

$(11, -6)$

14) The midpoint of segment AB is M(3, 4). One endpoint is A(-3, -2). Find the coordinates of the other endpoint B.

$$\dfrac{3, 4}{\begin{array}{c} x2, x2 \\ 6, 8 \\ +3 \ +2 \end{array}}$$

$(9, 10)$