

# Geometry

Name \_\_\_\_\_

**Be sure to show all your work for the problems.**

**I. Determine the slope of the line through each pair of points.**

1. (5, 1) and (2, 7)

2. (5, 3) and (-2, 3)

3.  $(-\frac{1}{2}, -2)$  and  $(-\frac{3}{2}, 1)$

4. (2, -4) and (2, 6)

**II. Determine the equation for each line, using the information given.**

5. slope 5, containing the point (3,2)

6. containing the points (0,2) and (2,0)

7. containing the points (-1, 2) and (5, 6)

**III. Solve for x.**

8.  $5x + 3 = -12$

9.  $(6x - 8) - (5x + 9) = 3$

10.  $7x - 8x + 4 = 5x - 2$

11.  $3(x - 2) = 18$

12.  $(3x + 2) - 2(x + 4) = 7$

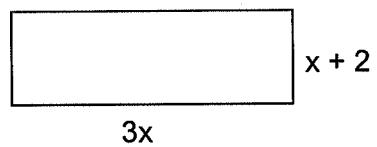
13.  $\frac{x}{3} = \frac{8}{15}$

14.  $\frac{18}{x} = 6$

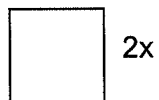
15.  $\frac{5}{7} = \frac{10}{x+2}$

IV. Write an expression for both the area and perimeter of each figure.

16. rectangle



17. square



V. Using the given information, determine each answer

18. Area and circumference of a circle with radius 4 in.

19. Area and circumference of a circle with diameter 9 in

20. Circumference of a circle with area  $36\pi$  square centimeters

**VI. Simplify**

21.  $\sqrt{81}$

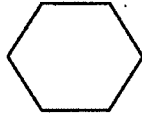
22.  $x^3x^6$

23.  $\frac{4x^5y^{-2}}{2x^8y}$

24.  $(5x^3y^2)^2$

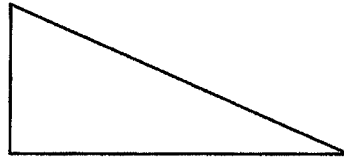
**VII. Identify each figure by name.**

25.



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26.



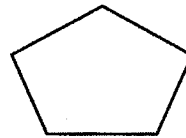
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27.



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28.



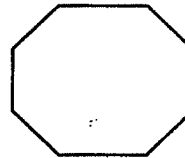
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29.



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30.



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**VIII. Solve each equation either by factoring or by using the quadratic formula ( If**

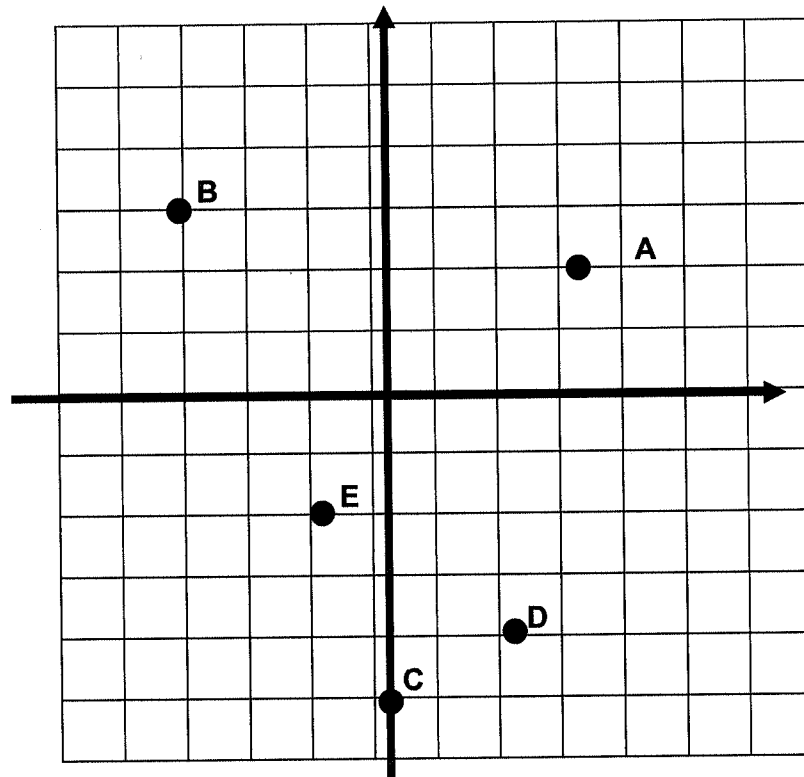
$ax^2 + bx + c = 0$ , then  $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$  .)

31.  $x^2 + 3x = 0$

32.  $x^2 - 5x - 24 = 0$

33.  $3x^2 + x - 4 = 0$

IX. Use the graph to answer #34 – 35



34. Give the coordinates of each lettered point. (each block represents one unit)

A \_\_\_\_\_ B \_\_\_\_\_ C \_\_\_\_\_ D \_\_\_\_\_ E \_\_\_\_\_

35. Tell what quadrant each point is in.

A \_\_\_\_\_ B \_\_\_\_\_ C \_\_\_\_\_ D \_\_\_\_\_ E \_\_\_\_\_

**X. Answer in complete sentences where appropriate. Show all your work to receive full credit.**

36. Square Deal Pizza offers square pizza that is 15 inches long on each side. A cheese pizza costs \$9.00. Roundoff Pizza offers circular pizza that is 16 inches in diameter. A cheese pizza at Roundoff costs \$8.75.

- Which restaurant's pizza is bigger? Justify your answer using words, symbols, or both.
- Which restaurant's pizza is a better buy? Justify your answer using words, symbols, or both.

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37. A juice pitcher holds 1.5 gallons of liquid. How many 8-ounce glasses of juice can be poured from a full pitcher? (1 gallon = 128 ounces) Explain your answer by writing or describing the steps you used to solve the problem.

Simplify each radical expression.

1) $\sqrt{289}$	2) $\sqrt{80}$
3) $\sqrt{845}$	4) $\sqrt{294}$
5) $\sqrt{12} \cdot \sqrt{28}$	6) $\sqrt{92} \cdot \sqrt{18}$
7) $\sqrt{50} \cdot \sqrt{80}$	8) $\sqrt{35} \cdot \sqrt{14}$

9) $\sqrt{24} \cdot \sqrt{26}$	10) $\sqrt{14} \cdot \sqrt{72}$
11) $\sqrt{196}$	12) $\sqrt{48}$
13) $\sqrt{500}$	14) $\sqrt{160}$
15) $\sqrt{18} \cdot \sqrt{15}$	16) $\sqrt{32} \cdot \sqrt{168}$



Solve the system of equations:

$$\begin{cases} y = 2x - 1 \\ y = 4x + 2 \end{cases}$$

Determine the point of intersection, i

$$\begin{cases} y = \frac{3}{2}x + 4 \\ 2x + 3y = 51 \end{cases}$$

Solve for x:  $\begin{cases} y = 2x \\ x + 3y = 17.5 \end{cases}$

Solve for y:  $\begin{cases} 3x - 4y = -6 \\ 2x + 3y = 13 \end{cases}$

Determine if the lines below are parallel, perpendicular or neither.

a)  $\begin{cases} 5x + 3y = 8 \\ 3y - 5x = 12 \end{cases}$

b)  $\begin{cases} 4x + 2y = 10 \\ 8x + 4y = 15 \end{cases}$