Optional Geometry Summer Packet

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. $(-\dfrac{1}{2}, -2)$ and $(-\dfrac{3}{2}, 1)$ 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. parallel to the line y = -2x + 3, containing the point (-2, -1)

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. $\dfrac{x+2}{3} = \dfrac{8}{15}$

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

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

IV. Determine the area and perimeter of each figure described:

16. rectangle with length 3.6 cm and width 4.2 cm

17. square with sides of length 9mm

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 36π square centimeters

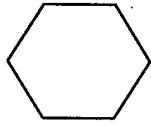## VI. Simplify

21. $\sqrt{81}$

22. x^3x^6

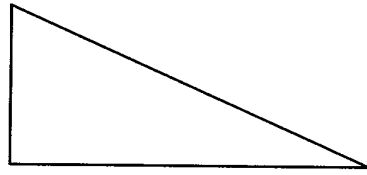23. $\dfrac{4x^5y^2}{2x^8y}$

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

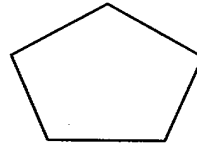## VII. Identify each figure by name.
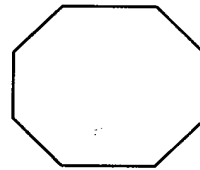
25.

26.

27.

28.

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30.

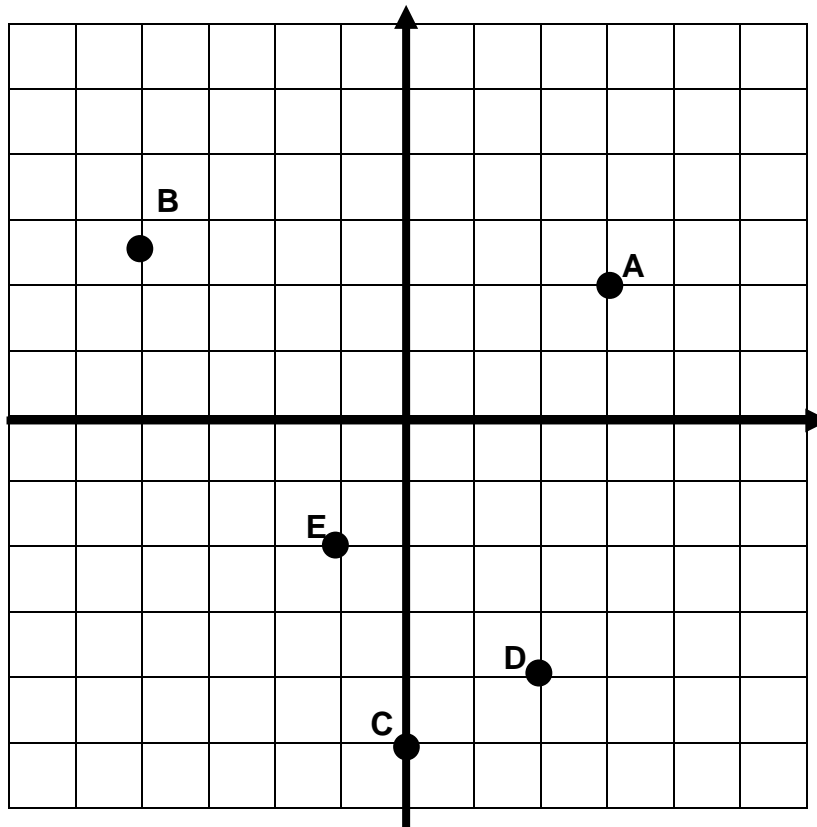## VIII. Solve each equation either by factoring or by using the quadratic formula ($x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$.)

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.

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.