GEOMETRY-A—Summer Skills Set

Algebra Concepts **Order of Operations**

Helpful Hints	1. Evaluate within grouping symbols 2. Evaluate powers (exponents) 3. Multiply and divide in order (L→R) 4. Add and subtract in order (L→R) 5. Simplify as needed * A number next to a grouping symbol means multiply.

Examples:

$3^2(5-3)^3+3$
$=3^2(2)^3+3$
$=9(8)+3$
$=72+3$
$=75$

$4+12\times3-8\div4$
$=4+36-2$
$=40-2$
$=38$

Evaluate each expression.

1. $6-5(7-5)^3+5$

2. $(4+5)-8+2(3)$

3. $(6-3)^2+12-8\div2$

4. $36\div2(5-1)^2$

5. $-4+5(7-4)-(-3)\div3$

6. $-7(8)+4(2)-(6+1)^2$

Evaluate each expression for $s = -3$ and $v = 2$

7. sv^2

8. $(sv)^2$

9. $-s^2+2s-4$

10. $s^2 - v^2$

11. $(s - v)^2$

12. $2s^2v$

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.
11.
12.
Score

Algebra Concepts **Solving Quadratic Equations**

Helpful Hints	The solutions of a quadratic equation are the *x*-intercepts of the graph of the corresponding parabola. There can be two real solutions, one real solution, or no real solution. • First bring everything to one side (set the equation equal to 0). • When there is no linear term (b = 0), get x^2 by itself and take the square root. Two answers result. • If the quadratic expression can be factored easily, then factor, set each factor equal to zero and solve. • When factoring is not easy or not possible, use the quadratic formula or solve by calculating the zeros on your graphing calculator. ***The quadratic formula:*** If $ax^2 + bx + c = 0$, then $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Solve each equation by the indicated method. When necessary, round answers to two decimal places.

Solve questions 1-3 by using square roots.

1. $k^2 = 16$

2. $x^2 + 7 = 25$

3. $2m^2 + 24 = 10$

Solve questions 7-9 by using the quadratic formula. Check your answers by graphing.

4. $4g^2 + 8g + 7 = 4$

5. $5x^2 = 18$

6. $9n^2 - 7n - 4 = 0$

1.
2.
3.
4.
5.
6.
Score

Algebra Concepts **Solving Equations in One Variable**

Helpful Hints	To solve an equation in one variable, use inverse operations to isolate the variable.

Example:

$$5-2(r+6)=1$$

$5-2r-12=1$	Distributive Property
$-2r-7=1$	Combine like terms
$-2r-7+7=1+7$	Add 7 to each side
$-2r=8$	Simplify
$\frac{-2r}{-2}=\frac{8}{-2}$	Divide both sides by -2
$r=-4$	Simplify

Solve each equation.

1. $x - 6 = 10$

2. $\frac{x}{5}=15$

3. $8x = 24$

4. $-\frac{4}{7}x=-8$

5. $a-\frac{1}{8}=\frac{5}{8}$

6. $3y - 4 = 20$

7. $\frac{t}{7}+2=1$

8. $3r - (2r + 1) = 21$

9. $44 = 5y - 8 - y$

10. $75 + 7c = 2c$

11. $\frac{3}{5}n+12=2n-9$

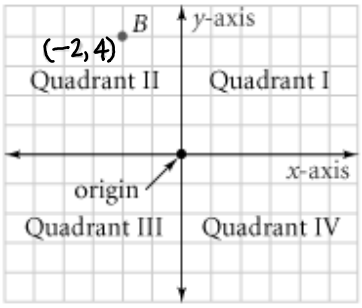
12. $-\frac{1}{2}(16-2y)=11$

13. $7(4c + 1) - 2(2c - 3) = -23$

14. $x - (-4x + 2) = 13$

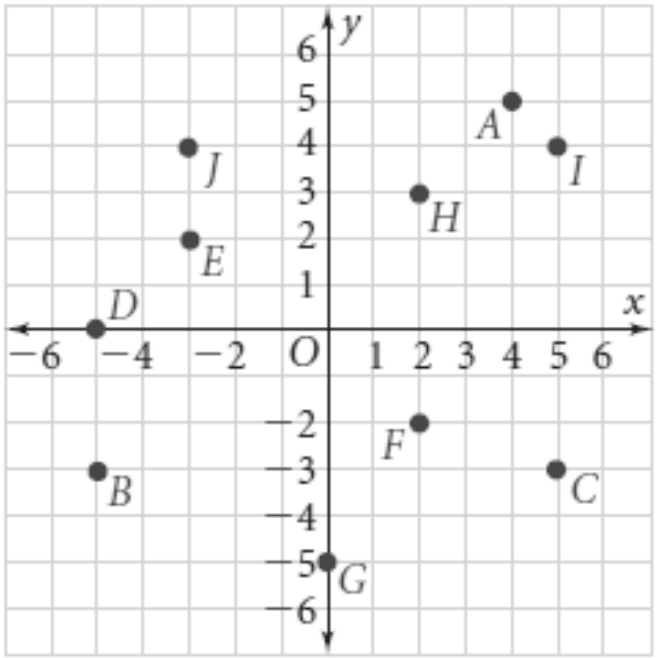
1.
2.
3.
4.
5.
6.
7.
8.
9.
10.
11.
12.
13.
14.
Score

Geometry Concepts **Coordinate System/Ordered Pairs**

Helpful Hints	Ordered pairs can be graphed on a coordinate plane. The first number of an ordered pair shows how to move *across*. It is called the **x-coordinate**. The second number of an ordered pair shows how to move *up or down*. It is called the **y-coordinate**. **Example:** To locate point *B*, move left (backward) to −2 and up to 4.	

Give the coordinates of the following labeled points.

1. A
2. B
3. C
4. D
5. E



Match the coordinates to the corresponding point labeled on the above graph.

6. (−3, 4)
7. (5, 4)
8. (0, −5)
9. (2, 3)
10. (2, −2)

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.
Score