Algebra 2 Summer Review

For students who have *completed* Geometry and are **entering** Algebra 2

Reviewing key concepts from Algebra 1 is an excellent way to be fully prepared for the pace and rigor of Algebra 2. The following packet will help you practice and self-assess any concepts that you may want to spend extra time on before the start of school. **You should not use any type of calculator while doing these problems.**

You will take a low-stakes diagnostic quiz on this material to identify any gaps in critical concepts. You will be given additional assignments to help you learn the material until you can demonstrate mastery. If you would like additional resources to support your practice, we recommend Khan Academy as a great first step.

Going Into Algebra 2   Name_____
Summer Review

Solve each equation.

1) $7 = n + 6$

2) $-11 + n = -10$

3) $\dfrac{-4 + r}{14} = -1$
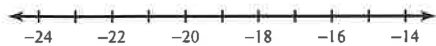
4) $6x - 3 = -93$

5) $5(6 + 4a) = 110$

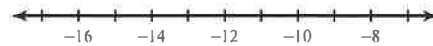6) $-96 = 8(-6m + 6)$

7) $-(r + 3) + 8 = 37 + 3r$

8) $-5(-6m - 1) = 5m - 20$

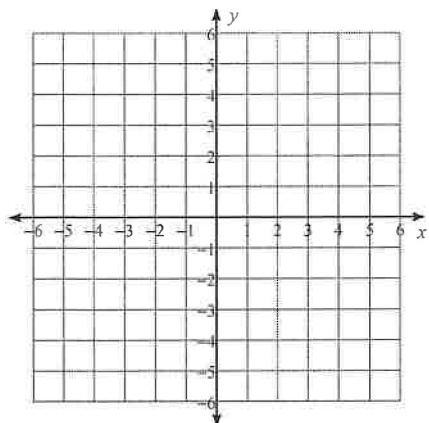**Solve each inequality and graph its solution.**

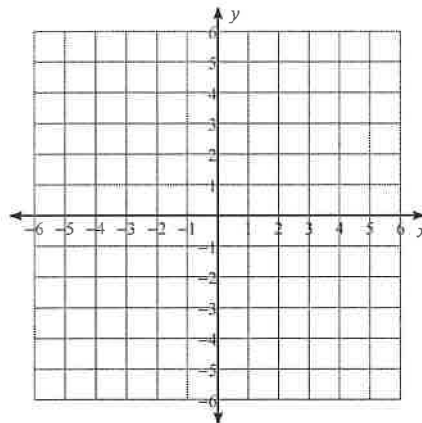9) $x - 14 \geq -30$

10) $-16 + n < -28$

Sketch the graph of each line.

11) $y = 2x - 3$
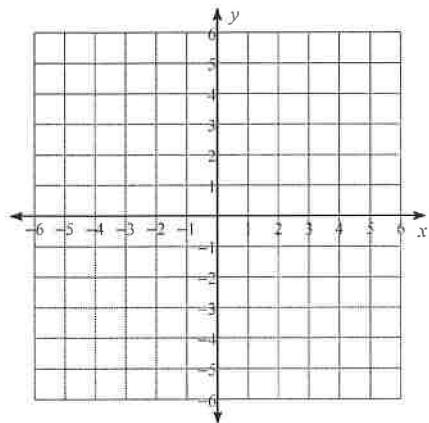

12) $3x + y = 1$

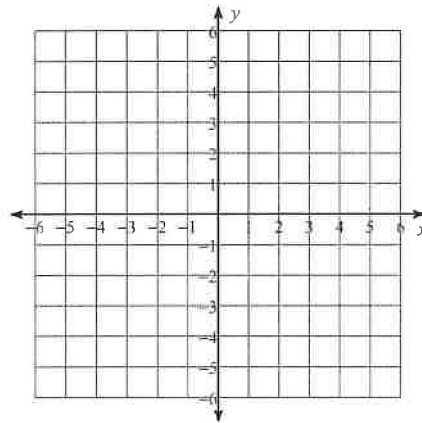**Sketch the graph of each linear inequality.**

13) $y > -3x - 1$

14) $y \geq -5$

Solve each system by substitution.

15) $6x + y = 2$
    $-6x - y = 3$

16) $x + y = 5$
    $8x - 8y = 24$

Solve each system by elimination.

17) $-6x + 2y = -22$
    $-12x + 9y = 6$

18) $2x - 3y = 6$
    $6x - 9y = 18$

Simplify. Your answer should contain only positive exponents.

19) $3v^3 \cdot 4v^4 \cdot 2v^2$

20) $\left(2k^{-2}\right)^2$

21) $\left(n^{-1}\right)^{-4}$

22) $\dfrac{3x^{-4}}{2x^0}$

Simplify each expression.

23) $(7x^3 + x + 7) + (x - 3x^2 + 2x^3)$

24) $(7n + 7n^4 + 8n^2) - (4n^3 + 7n^2 + 3n)$

Find each product.

25) $(p - 3)(p - 5)$

26) $(4r - 3)(3r + 7)$

Factor the common factor out of each expression.

27) $-30 + 12b - 24b^2$

28) $-10k^2 + 14k^3 + 14k^4$

Factor each completely.

29) $4v^2 - 72v + 320$

30) $7x^2 - 10x$

Answers to Summer Review

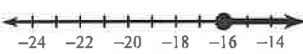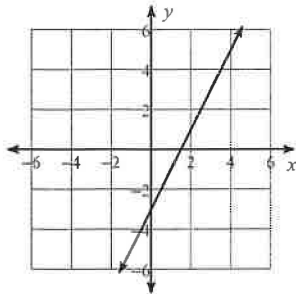1) $\{1\}$ 2) $\{1\}$ 3) $\{-10\}$ 4) $\{-15\}$
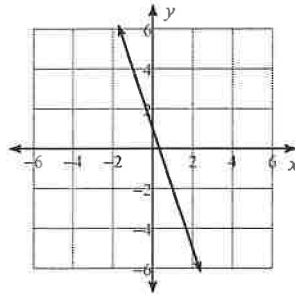5) $\{4\}$ 6) $\{3\}$ 7) $\{-8\}$ 8) $\{-1\}$
9) $x \geq -16$:
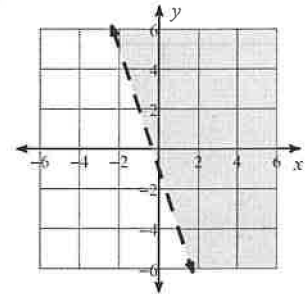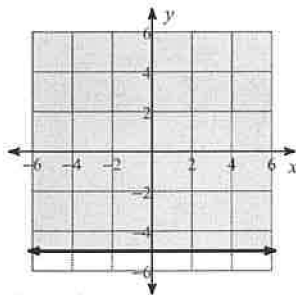

10) $n < -12$:

11)

12)

13)

14)

15) No solution 16) $(4, 1)$

17) $(7, 10)$ 18) Infinite number of solutions 19) $24v^9$

20) $\dfrac{4}{k^4}$ 21) n^4 22) $\dfrac{3}{2x^4}$ 23) $9x^3 - 3x^2 + 2x + 7$

24) $7n^4 - 4n^3 + n^2 + 4n$ 25) $p^2 - 8p + 15$ 26) $12r^2 + 19r - 21$

27) $6(-5 + 2b - 4b^2)$ 28) $2k^2(-5 + 7k + 7k^2)$ 29) $4(v - 10)(v - 8)$ 30) $x(7x - 10)$