

Geometry Honors Summer Work

Name:

This packet is to be completed without a calculator. Please do all work directly on the page.

Section 1: Simplifying and multiplying expressions

Simplify each expression.

1. $(5p^2 - 3) + (2p^2 - 3p^3)$

2. $(a^3 - 2a^2) - (3a^2 - 4a^3)$

3. $(-4k^4 + 14 + 3k^2) + (-3k^4 - 14k^2 - 8)$

4. $(8n - 3n^4 + 10n^2) - (3n^2 + 11n^4 - 7)$

5. $(-5u^3v^4 + 9u) + (-5u^3v^4 - 8u + 8u^2v^2) + (-8u^4v^2 + 8u^3v^4)$

Find each product

6. $2x(-2x - 3)$

7. $-4(x + 1)$

8. $(2n + 2)(6n + 1)$

9. $(3m - 1)(8m + 7)$

10. $(x - 4)^2$

11. $(x - 3)(x + 3)$

12. $(2k^2 + 1)^2$

13. $(3x + 7)(3x - 7)$

14. $(4a + 2)(6a^2 - a + 2)$

15. $(6n^2 - 6n - 5)(7n^2 + 6n - 5)$

Section 2: Factoring trinomials

Factor each completely.

1. $b^2 + 8b + 7$

2. $n^2 - 11n + 10$

3. $m^2 + 2m - 24$

4. $x^2 - 14x + 24$

5. $x^2 - 25$

6. $16n^2 - 9$

7. $100x^2 + 180x + 81$

8. $49n^2 - 56n + 16$

Section 3: Solving equations with one variable. You may also put no solutions or infinite solutions.

1. $4x = 20$

2. $3 + x = -17$

3. $\frac{2}{3}x = 8$

4. $\frac{x}{11} = 4$

5. $2x - 8 = -32$

6. $3x + 4x = -14$

7. $-36 = 6(2 - 8x)$

8. $-(-2x + 2) = -14$

9. $-6(x - 7) + 6(x + 5) = 73$

10. $6x - 2x + 8 = x + 5$

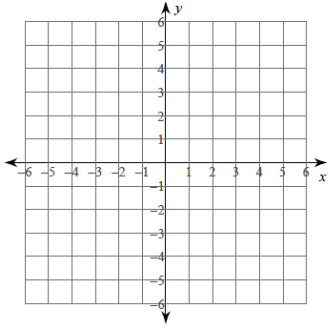
11. $4x + 5x + 15 = 5x + 7x$

12. $2(x + 8) = -3(x + 3)$

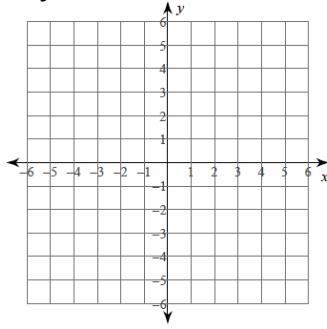
13. $-5n - 4(-7 - 4n) = 36 + 7n$

Sketch the graph of each line.

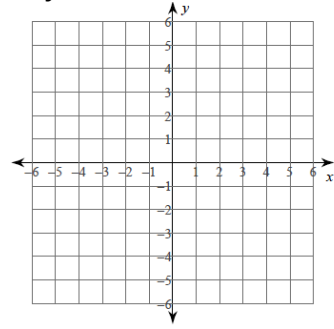
11. $x = 3$



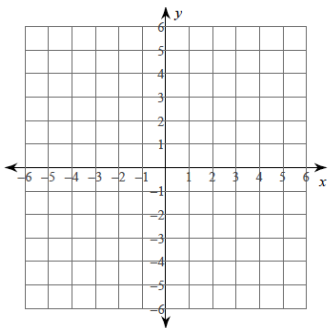
12. $y = -4$



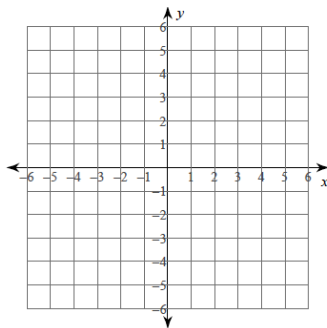
13. $y = -6x + 3$



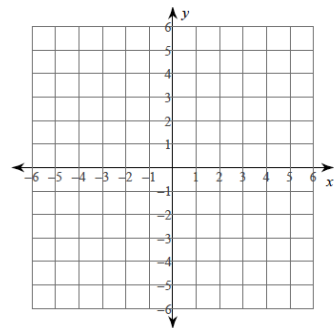
14. $y = \frac{1}{4}x - 2$



15. $y = -\frac{1}{3}x + 3$



16. $6x + 5y = 20$



Section 5: Systems of equations (solving equations with two variables)

Solve each system by elimination.

1. $-4x - 2y = -12$
 $4x + 8y = -24$

2. $x - y = 11$
 $x + y = 19$

3. $-6x + 6y = 6$
 $-6x + 3y = -12$

4. $-4x + 9y = 9$
 $x - 3y = -6$

5. $5x + 4y = -30$
 $3x - 9y = -18$

Solve each system by Substitution

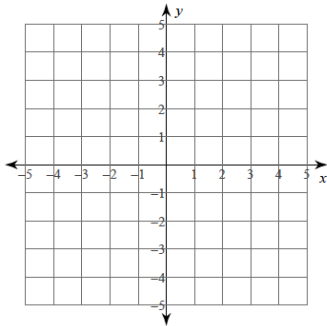
$$\begin{aligned} 6. \quad & y = 2 \\ & 4x - 3y = 18 \end{aligned}$$

$$\begin{aligned} 7. \quad & y = 6x - 11 \\ & -2x - 3y = -7 \end{aligned}$$

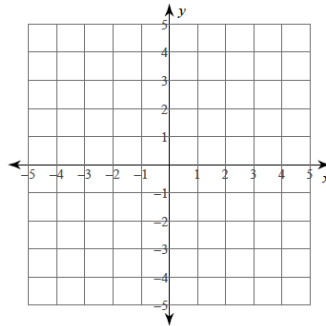
$$\begin{aligned} 8. \quad & -5x + y = -2 \\ & -3x + 6y = -12 \end{aligned}$$

Solve each system by graphing

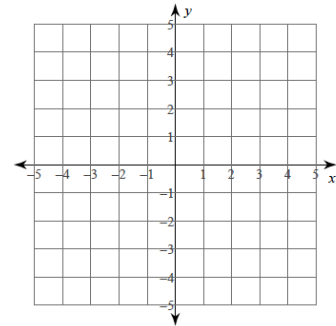
$$\begin{aligned} 9. \quad & y = -\frac{5}{3}x + 3 \\ & y = \frac{1}{3}x - 3 \end{aligned}$$



$$\begin{aligned} 10. \quad & y = -1 \\ & y = -\frac{5}{2}x + 4 \end{aligned}$$



$$\begin{aligned} 11. \quad & y = -2x + 2 \\ & y = -2x - 2 \end{aligned}$$



Section 6: Square roots

Simplify. Leave all answers in simplest radical form.

1. $\sqrt{216}$

2. $\sqrt{12}$

3. $10\sqrt{96}$

4. $2\sqrt{36}$

5. $-5\sqrt{6} - 2\sqrt{6}$

6. $-3\sqrt{24} - 3\sqrt{2} + 2\sqrt{2}$

7. $\sqrt{5} \cdot \sqrt{5}$

8. $\sqrt{10} \cdot \sqrt{2}$

9. $\sqrt{6} \cdot 2\sqrt{9}$

10. $4\sqrt{3} \cdot 4\sqrt{6}$