# Pre-Course ASSIGNMENT Accelerated Geometry 2024-25

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### Student Pre-course (Summer) Assignment 2024-2025

### **Accelerated Geometry**

Hello folks.

My name is Mr. Dolly and I will be your Accelerated Geometry teacher next year.

The pre-course assignment is **required work** for all students entering accelerated courses at Gettysburg Area High School. Accelerated packets cover material you have already learned in previous courses and emphasize skills necessary to be successful in this course.

The packet must be completed and turned in the **first day** of class for each semester.

(August for Fall semester students, January for Spring semester students.) Note: Fall semester students should work throughout June and July to finish the packet, and shoot me some questions in August to make sure you have it in tip-top shape before school starts. Spring semester students will receive their packets during the course of the fall since it draws heavily on material from Algebra 1.5.

### Instructions:

**Print** out (or disassemble) the packet, **work out** the problems in the worksheet space or on blocks provided (as directed in the index). **Write** your name on the top and staple the packet together in order.

### All work must be shown to receive full credit.

Along with the Pre-course assignment, you will be taking a quiz on the material within the first week of class. I will combine those scores to form your *Pre-Course Assignment grade*.

I check my email regularly, so contact me if you have any questions or difficulty accessing materials over the summer or fall. I will do my best to straighten them out.

Happy Mathing!

Email: jdolly@gasd-pa.org

# Accelerated Geometry Summer Assignment

Topic Cha	pter-Lessor	n / Problems
Writing Linear Equations		
- slope-intercept form	7 – 2	Problems 1 – 15 (on worksheet)
- point-slope form	7-3	1-6, 10- 15, 19-24 (on block paper)
Linear Graphing		
- TI-83		handout (no problems)
- by hand	7 – 5	Problems 1 – 12 (on worksheet)
Polynomials		
- FOIL	9-3,4	Problems 1 – 15 (block paper)
- factoring trinomials	10 – 3	Problems 1 – 21 (on worksheet)
Solving Systems of Equations		
- Graphing (with calculator)	13 – 1	Problems 1 – 12 (on worksheet)
- Substitution	13 – 3	Problems 1 – 12 (block paper)
- Elimination	13 – 4	Problems 1 – 9 (block paper)
	13 ~ 5	Problems 1 – 12 (block paper)
Radical Expressions		
- Real Numbers	14 – 1	Problems 7 – 18 (on worksheet)
- Reducing Radicals	14 – 3	Problems 1 – 18 (on worksheet)
- Adding, subtracting, multiplying	14 - 4	Problems 1, $6 - 20$ (on worksheet)

### Writing Equations in Point-Slope Form

Practice

Write the point-slope form of an equation for each line passing through the given point and having the given slope.

1. 
$$(4, 7), m = 3$$

2. 
$$(-2, 3), m = 5$$

3. 
$$(6, -1)$$
,  $m = -2$ 

4. 
$$(-5, -2)$$
,  $m = 0$ 

5. 
$$(-4, -6)$$
,  $m = \frac{2}{3}$ 

**6.** 
$$(-8, 3), m = -\frac{3}{5}$$

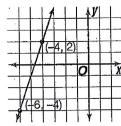
7. 
$$(7, -9), m = 4$$

8. 
$$(-6, 3), m = -\frac{1}{2}$$

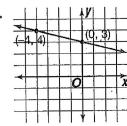
9. 
$$(-2, -5)$$
,  $m = 8$ 

Write the point-slope form of an equation for each line.

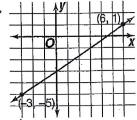
10.



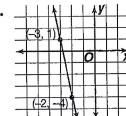
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12.



13.



14. the line through points at (-2, -2) and (-1, -6)

15. the line through points at (-7, -3) and (5, -1)

### Writing Equations in Slope-Intercept Form

Write an equation in slope-intercept form of the line with each slope and y-intercept.

1. 
$$m = -3$$
,  $b = 5$ 

2. 
$$m = 6, b = 2$$

3. 
$$m = 4$$
,  $b = -1$ 

4. 
$$m = 0, b = 4$$

5. 
$$m=\frac{2}{5}$$
,  $b=-7$ 

**6.** 
$$m=-\frac{3}{4}, b=8$$

Write an equation in slope-intercept form of the line having the given slope and passing through the given point.

**10.** 
$$m = 3, (4, 2)$$

11. 
$$m = -2, (-1, 3)$$
 12.  $m = 4, (0, -7)$ 

12. 
$$m = 4, (0, -7)$$

**13.** 
$$m = -\frac{3}{5}$$
,  $(-5, -3)$  **14.**  $m = \frac{1}{4}$ ,  $(-8, 6)$ 

14. 
$$m = \frac{1}{4}$$
, (-8, 6)

**15.** 
$$m = -\frac{2}{3}$$
, (9, -4)

Write an equation in slope-intercept form of the line passing through each pair of points.

**19.** 
$$(1, 3)$$
 and  $(-3, -5)$ 

**20.** 
$$(0, 5)$$
 and  $(3, -4)$ 

**22.** 
$$(-3, 0)$$
 and  $(6, -6)$ 

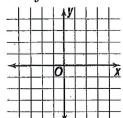
**23.** 
$$(4, 5)$$
 and  $(-5, 5)$ 

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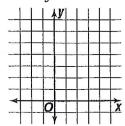
### **Graphing Linear Equations**

Determine the x-intercept and y-intercept of the graph of each equation. Then graph the equation.

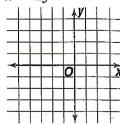
$$1. x + y = -2$$



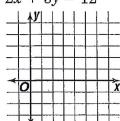
2. 
$$2x + y = 6$$



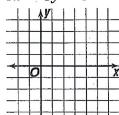
3. 
$$x - 2y = -4$$



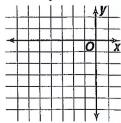
4. 
$$2x + 3y = 12$$



5. 
$$3x - 3y = 9$$



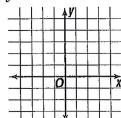
6. 
$$5x + 6y = -30$$



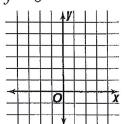


Determine the slope and y-intercept of the graph of each equation. Then graph the equation.

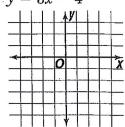
7. 
$$y = -x + 3$$



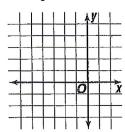
8. 
$$y = 5$$



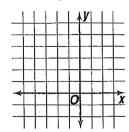
9. 
$$y = 3x - 4$$



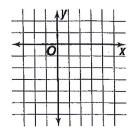
10. 
$$y = \frac{2}{5}x + 2$$



11. 
$$y = -\frac{3}{4}x + 1$$



12. 
$$y = \frac{2}{3}x - 6$$





# 9-3,4 Study Guide and Intervention (continued) Polynomials

Multiply Polynomials You use the distributive property when you multiply polynomials. When multiplying binomials, the FOIL pattern is helpful.

To multiply two binomials, add the products of

F the first terms,

FOIL Pattern O the outer terms,

I the inner terms, and

L the last terms.

### Example 1 Find $4y(6-2y+5y^2)$ .

$$4y(6-2y+5y^2) = 4y(6) + 4y(-2y) + 4y(5y^2)$$
 Distributive Property 
$$= 24y - 8y^2 + 20y^3$$
 Multiply the monomials.

### Example 2 Find (6x-5)(2x+1).

$$(6x-5)(2x+1) = 6x \cdot 2x + 6x \cdot 1 + (-5) \cdot 2x + (-5) \cdot 1$$
First terms Outer terms Inner terms Last terms
$$= 12x^2 + 6x - 10x - 5 \quad \text{Multiply monomials.}$$

$$= 12x^2 - 4x - 5 \quad \text{Add like terms.}$$

### Exercises

Find each product.

1. 
$$2x(3x^2 - 5)$$

**2.** 
$$7a(6-2a-a^2)$$

3. 
$$-5y^2(y^2 + 2y - 3)$$

4. 
$$(x-2)(x+7)$$

5. 
$$(5-4x)(3-2x)$$

6. 
$$(2x-1)(3x+5)$$

7. 
$$(4x + 3)(x + 8)$$

8. 
$$(7x-2)(2x-7)$$

$$9.(3x-2)(x+10)$$

10. 
$$3(2a + 5c) - 2(4a - 6c)$$

11. 
$$2(a-6)(2a+7)$$

12. 
$$2x(x + 5) - x^2(3 - x)$$

13. 
$$(3t^2 - 8)(t^2 + 5)$$

**14.** 
$$(2r+7)^2$$

**15.** 
$$(c + 7)(c - 3)$$

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### Factoring Trinomials: $x^2 + bx + c$

Practice

Factor each trinomial. If the trinomial cannot be factored, write prime.

1. 
$$x^2 + 5x + 6$$

2. 
$$y^2 + 5y + 4$$

3. 
$$m^2 + 12m + 35$$

4. 
$$p^2 + 8p + 15$$

5. 
$$a^2 + 8a + 12$$

6. 
$$n^2 + 4n + 4$$

7. 
$$x^2 + 9x + 18$$

8. 
$$x^2 + x + 3$$

9. 
$$y^2 - 6y + 8$$

10. 
$$c^2 - 8c + 15$$

11. 
$$m^2 - 2m + 1$$

12. 
$$b^2 - 9b + 20$$

13. 
$$x^2 - 8x + 7$$

14. 
$$n^2 - 5n + 6$$

15. 
$$y^2 - 8y + 12$$

16. 
$$c^2 - 4c + 5$$

17. 
$$x^2 - x - 12$$

18. 
$$m^2 + 5m - 6$$

19. 
$$a^2 + 4a - 12$$

**20.** 
$$y^2 - y - 6$$

**21.** 
$$b^2 - 3b - 10$$



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### Study Guide



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### **Graphing Systems of Equations**

The ordered pair (-1, -3) is the solution of the system of equations

$$y = x - 2$$

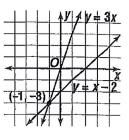
$$y = 3x$$

because when -1 is substituted for x and -3 is substituted for y, both equations are true.

$$y = x - 2$$
  $y = 3x$   
 $-3 \stackrel{?}{=} -1 - 2$   $-3 \stackrel{?}{=} 3(-1)$   
 $-3 = -3 \checkmark$   $-3 = -3 \checkmark$ 

You can also graph both equations to show that (-1, -3) is the solution of the system.

The graphs appear to intersect at (-1, -3). Since (-1, -3) is the solution of each equation, it is the solution of the system of equations.



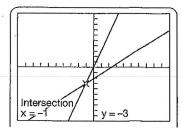
You can also use a graphing calculator to solve the system of equations.

Step 1 Enter these keystrokes in the Y= screen:

$$[X, T, \theta, n] - 2 [ENTER]$$
  
3  $[X, T, \theta, n] [ENTER] [GRAPH]$ 

Step 2 Use the INTERSECT feature to find the intersection point.

The solution is (-1, -3).

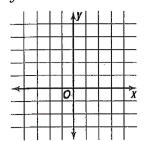




### Graphing Systems of Equations

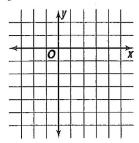
Solve each system of equations by graphing.

$$\begin{aligned}
\mathbf{1.} \ y &= 3x \\
y &= -x + 4
\end{aligned}$$



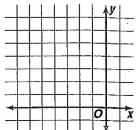
2. 
$$y = x - 4$$

$$y = 2x - 3$$



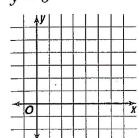
3. 
$$x = -3$$

$$y = x + 6$$



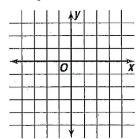
4. 
$$x - y = 1$$

$$y = 5$$



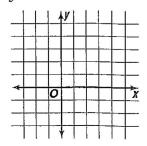
5. 
$$x + y = -1$$

$$x - y = 3$$



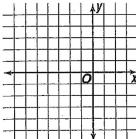
**6.** 
$$x + y = 2$$

$$y = -2x + 4$$



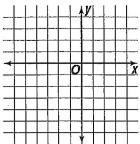
7. 
$$y = x + 3$$

$$y = -x - 5$$



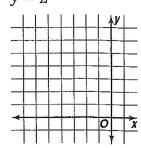
$$8. -x + y = 2$$

$$-2x + y = 7$$



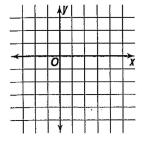
9. 
$$y = x + 6$$

$$y=2$$



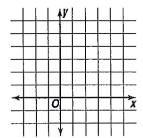
10. 
$$x - y = 4$$

$$y = -2x + 2$$



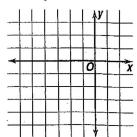
11. 
$$y = x + 2$$

$$3x + y = 10$$



12. 
$$y = x + 2$$

$$2x + y = -1$$





### Substitution

Use substitution to solve each system of equations.

1. 
$$y = x + 8$$
  
 $x + y = 2$ 

2. 
$$y = 2x$$
  
 $5x - y = 9$ 

3. 
$$y = x + 2$$
  
 $3x + 3y = 6$ 

$$4. x = 3y$$
$$2x + 4y = 10$$

5. 
$$x = y + 9$$
  
 $x + y = -7$ 

6. 
$$y = 2x + 1$$
  
  $2x - y = 3$ 

7. 
$$x = 3y$$
  
  $2x + 3y = 15$ 

8. 
$$x - 2y = 4$$
  
 $3x = 6y + 12$ 

$$9. \ x = 5y - 2 \\ 2x + 2y = 4$$

10. 
$$4y + 2x = 24$$
  
 $x = 3y + 2$ 

11. 
$$y = 3x + 8$$
  
 $4x + 2y = 6$ 

12. 
$$x = 3y + 10$$
  
 $2x + 2y = -12$ 

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## Practice ...

### Elimination Using Addition and Subtraction

Use elimination to solve each system of equations.

1. 
$$x + y = 4$$
  
 $x - y = -6$ 

2. 
$$x - y = 7$$
  
 $x + y = 1$ 

3. 
$$3x + y = 12$$
  
 $x + y = 8$ 

4. 
$$x + 5y = -12$$
  
 $x + 2y = -9$ 

5. 
$$x + 2y = 9$$
  
 $3x - 2y = 3$ 

6. 
$$4x + 2y = 2$$
  
 $-4x - 3y = 3$ 

7. 
$$4x - 3y = 10$$
  
 $2x - 3y = 2$ 

8. 
$$2x + 5y = 1$$
  
 $2x + 10y = 10$ 

9. 
$$3y = x + 4$$
  
 $2x + 3y = 19$ 

### Elimination Using Multiplication

Use elimination to solve each system of equations.

1. 
$$x + 3y = 6$$
  
 $2x - 7y = -1$ 

2. 
$$9x + 3y = 12$$
  
 $2x + y = 5$ 

3. 
$$3x - y = 14$$
  
 $5x + 4y = 12$ 

$$4. \ 3x - 3y = -3 \\ 2x - y = -5$$

5. 
$$3x + y = 2$$
  
 $6x + 2y = 4$ 

6. 
$$5x - y = 16$$
  
 $-4x - 3y = 10$ 

7. 
$$5x + 2y = 24$$
  
 $10x - 5y = -15$ 

$$8. \ 3x + 4y = 6 \\ 7x + 8y = 10$$

9. 
$$2x - 3y = 5$$
  
 $3x + 9y = 21$ 

10. 
$$3x + 2y = 11$$
  
 $6x + 3y = 13$ 

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11. 
$$6x - 2y = 4$$
  
 $2x - 5y = -3$ 

$$12. -7x - 3y = -5$$
$$5x + 6y = 19$$

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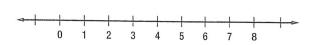
### The Real Numbers

Find an approximation, to the nearest tenth, for each square root. Then graph the square root on a number line.

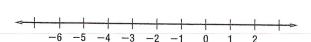
7.  $\sqrt{5}$ 



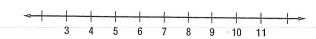
8.  $\sqrt{19}$ 



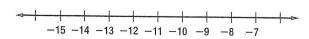
 $9 - \sqrt{22}$ 



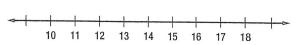
10.  $\sqrt{80}$ 



11.  $-\sqrt{145}$ 



12.  $\sqrt{275}$ 



Determine whether each number is rational or irrational. If it is irrational, find two consecutive integers between which its graph lies on the number line.

13.  $\sqrt{25}$ 

14.  $\sqrt{11}$ 

15.  $-\sqrt{42}$ 

16.  $\sqrt{169}$ 

17.  $-\sqrt{35}$ 

18.  $\sqrt{66}$ 

### Skills Practice

### Simplifying Radical Expressions

Simplify each expression. Leave in radical form.

1. 
$$\sqrt{24}$$

2. 
$$\sqrt{48}$$

3. 
$$\sqrt{72}$$

4. 
$$\sqrt{27}$$

5. 
$$\sqrt{300}$$

6. 
$$\sqrt{63}$$

7. 
$$\sqrt{2} \cdot \sqrt{18}$$

8. 
$$\sqrt{5} \cdot \sqrt{20}$$

9. 
$$\sqrt{8} \cdot \sqrt{10}$$

10. 
$$\sqrt{12} \cdot \sqrt{6}$$

11. 
$$2\sqrt{3} \cdot \sqrt{3}$$

12. 
$$5\sqrt{11} \cdot 2\sqrt{11}$$

13. 
$$\frac{\sqrt{24}}{\sqrt{6}}$$

14. 
$$\frac{\sqrt{75}}{\sqrt{3}}$$

15. 
$$\frac{\sqrt{96}}{\sqrt{8}}$$

16. 
$$\frac{\sqrt{48}}{\sqrt{6}}$$

17. 
$$\frac{\sqrt{2}}{\sqrt{5}}$$

18. 
$$\frac{\sqrt{6}}{\sqrt{8}}$$

# Skills Practice

### Adding and Subtracting Radical Expressions

Simplify each expression.

1. 
$$5\sqrt{2} + 3\sqrt{2}$$

6. 
$$9\sqrt{3} - \sqrt{3}$$

7. 
$$3\sqrt{15} - 8\sqrt{15}$$

8. 
$$14\sqrt{17} - 8\sqrt{17}$$

9. 
$$12\sqrt{7} - 3\sqrt{7} + 5\sqrt{7}$$

10. 
$$8\sqrt{15} + 2\sqrt{15} - 11\sqrt{15}$$

11. 
$$-4\sqrt{2} - 7\sqrt{2} - \sqrt{2}$$

12. 
$$8\sqrt{5} - 12\sqrt{5} + 2\sqrt{5}$$

13. 
$$3\sqrt{8} + 5\sqrt{2}$$

14. 
$$3\sqrt{3} - 6\sqrt{12}$$

15. 
$$3\sqrt{24} + 5\sqrt{6}$$

16. 
$$\sqrt{72} - 9\sqrt{2}$$

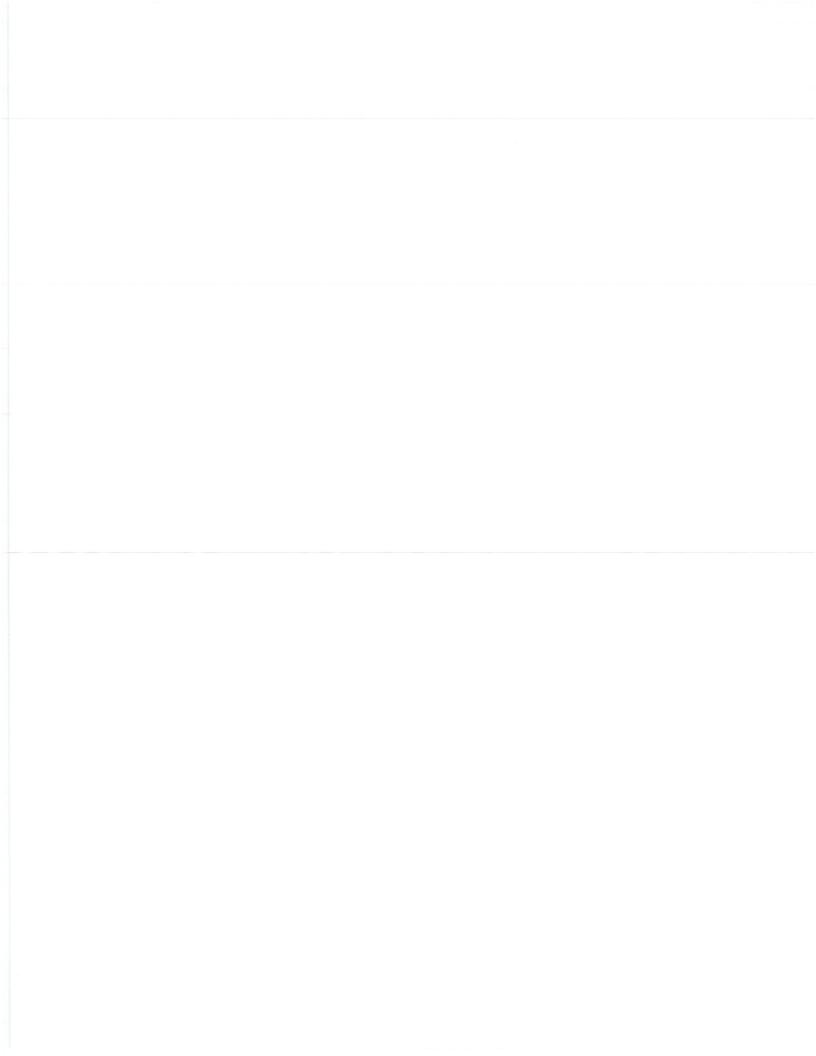
17. 
$$-2\sqrt{48} + 5\sqrt{3}$$

18. 
$$7\sqrt{27} + 2\sqrt{12}$$

19. 
$$5\sqrt{27} - 2\sqrt{48} + \sqrt{12}$$

**20.** 
$$6\sqrt{20} + \sqrt{125} - 3\sqrt{80}$$

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