Mathematics Summer Packet
Students Entering Geometry

Name:

Points: 30

This packet should be completed and submitted to your mathematics teacher by September 8, 2025.

Evaluate Algebraic Expressions

Evaluate each expression.

1. $2x + 6$ for $x = 12$

2. $-3x - 5$ for $x = 18$

3. $\frac{1}{5}x + 14$ for $x = 20$

4. $\frac{x}{2} \cdot 16$ for $x = 5$

5. $\frac{2}{x - 1} + 4$ for $x = 0$

6. $x^2 - 4x$ for $x = -1$

Square Roots and Cube Roots

Evaluate each expression.

7. $\sqrt[3]{216}$

8. $\sqrt{169}$

9. $\sqrt{225}$

10. $\sqrt{\frac{49}{144}}$

11. $\sqrt[3]{27}$

12. $\sqrt[3]{125}$

Properties of Exponents

Simplify each expression.

13. $3^4 \cdot 3^5$

14. $(2 \cdot 3)^2$

15. $5^5 \div 5^2$

16. $(4^2)^3$

17. $\frac{6^7}{6^5}$

18. $8\left(\frac{1}{2}\right)^4$

Simplify Algebraic Expressions

Simplify each expression.

1. $(4x - 1) + (2x + 3)$

2. $(1 + 3y) - (2 - 5y)$

3. $2(6n + 4) - 5n$

4. $-8x - 3(2x - 1)$

Solve Two-Step Equations

Solve each equation.

5. $3b + 4 = -8$

6. $106 = 43 + 7x$

7. $-\frac{1}{4}s - \frac{3}{2} = \frac{3}{4}$

8. $2m + 1.5 = -11.7$

Write Two-Step Inequalities

Write an inequality to model each situation.

Bob has two 8-foot sections of prebuilt fencing left over from a previous fencing project. He plans to buy s 6-foot sections of the fencing so that he will have more than 40 feet of fencing.

Vijay has loaded 35 pounds of soil onto a cart. He will add b bricks that each weigh 4 pounds, but he does not want to exceed a total weight of 100 pounds in the cart.

Ana is baking cookies for a cookie exchange. She has already baked 20 cookies, and she will bake 1 dozen cookies at a time in each of the next b batches. She wants to take at least 50 cookies to the exchange.

Find Unit Rates

1. Lisa takes 27 minutes to run 3 miles.

A. Write Lisa's unit rate in minutes per mile.

B. Write Lisa's unit rate in miles per minute.

C. At this rate, how many miles will Lisa have run after 45 minutes?

D. At this rate, how long would it take Lisa to run 7 miles?

2. A 5-pound bag of carrots costs $2.69, and a 2-pound bag costs $1.89.

A. Which bag provides a greater weight per dollar spent?

B. How much does 10 pounds of carrots cost when purchasing 5-pound bags?

C. How much does 10 pounds of carrots cost when purchasing 2-pound bags?

D. What is the difference in price between each option when purchasing 10 pounds of carrots?

Solve Two-Step Equations

Solve each equation.

3. $5x + 2 = 9$

4. $\frac{2}{3}x - 3 = -7$

5. $2(x + 1) = 10$

6. $\frac{4}{5}(15x - 1) = -8$

Graph $y = mx$

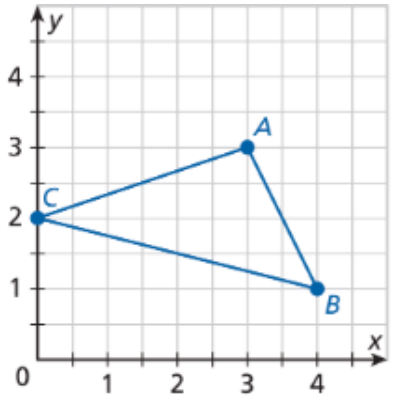
Graph each equation.

7. $y = 3x$

8. $y = \frac{4}{5}x$

Translate Figures in the Coordinate Plane

Identify the coordinates of $\triangle ABC$ under each translation.



5. 2 units down

6. 3 units to the right and 4 units down

7. 2 units to the left and 1 unit up

Evaluate Algebraic Expressions

Evaluate each expression for the given information.

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

$6x + 4y =$?

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

$3x + 6y =$?

Slopes of Lines

Find the slope of the line passing through the two points on the line.

3. $(1, 2)$ and $(5, 1)$

4. $(-1, -3)$ and $(2, 6)$

5. $(4, 3)$ and $(6, -2)$

6. $(-2, -2)$ and $(-8, -14)$

Point-Slope Form

Write the equation of a line in point-slope form using the given information.

7. slope, $m = 3$, passing through the point $(6, 8)$

8. slope, $m = -2$, passing through the point $(2, 3)$

9. passing through the points $(1, 2)$ and $(0, 8)$

Represent Equations with Tables and Graphs

For each equation, create a table with 3 points and then graph the equation.

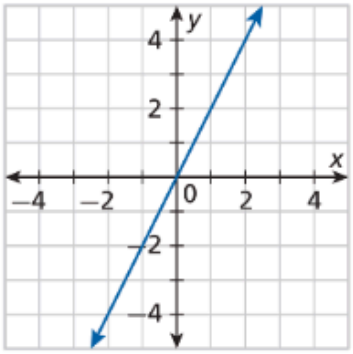
1. $y = x - 2$

2. $y = -\frac{5}{2}x$

Compare Proportional Relationships

For each pair of models, state which model represents the lesser unit rate.

3. $y = 3x$



4. $y = 1.5x$

x	y
3	5
6	10
9	15
12	20

Find and Interpret Absolute Values of Numbers

Determine the absolute value of the following numbers.

1. -5

2. 0

3. 11

4. $-\pi$

5. The state of California requires that hot food being served at any facility over a period of time be held at a temperature of 135 °F or higher before food is removed from the temperature control to be served. If the holding oven used has a tolerance of 2 °F and shows a temperature of 138 °F, is the holding temperature within the state requirement?

6. The length of a bolt should be 18.0 cm. The allowable range of bolt length is from 17.5 cm to 18.5 cm. What is the tolerance of the bolt length?

Solve Two-Step Inequalities

Find the solution for each two-step inequality.

7. $2x - 1 \geq 9$

8. $\frac{x-4}{5} > 8$

9. $3x + 6 < -15$

10. $\frac{x+3}{4} \leq -2$

Graph Linear Equations in Slope-Intercept Form

Create a graph for each given function.

11. $y = -2x - 3$

12. $y = 3x + 1$

13. $y = \frac{1}{3}x + 2$

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

Add and Subtract Rational Numbers

Simplify each expression.

1. $-\frac{1}{2}+\frac{5}{6}$

2. $-1.24-2.54$

3. $1.24+6.52$

4. $\frac{3}{4}-\frac{7}{8}$

5. $\frac{2}{9}+\frac{1}{5}$

6. $5.81-9.1$

Multiply and Divide Rational Numbers

Simplify each expression.

7. $\left(\frac{1}{2}\right)\left(\frac{7}{8}\right)$

8. $1.11(0.5)$

9. $378 \div 5$

10. $\frac{3}{5} \div \frac{7}{8}$

11. $\left(-\frac{2}{3}\right)\left(\frac{9}{13}\right)$

12. $0.0768 \div 0.024$

Evaluate Algebraic Expressions

Evaluate the expression for the given information.

13. $-3+5(n-1)$ for $n=6$

14. $2-6(n+2)$ for $n=3$

15. $-5-7(n-1)$ for $n=10$

16. $2+3(n-8)$ for $n=20$

17. $2(n+1)-12$ for $n=5$

18. $-3(n-3)+3$ for $n=-3$