Name: _____

Dynamics of Algebra II – Resource Center
2025-2026 Summer Packet

Answer each of the following thoroughly. Show all work. It's okay to collaborate with others or seek out help. The goal is for you to practice skills that you will need prior to entering the Algebra II classroom. If you are struggling with these sorts of problems, we recommend that you practice so that you will have a strong skill set as you begin Algebra II in September.

1. **Solve the proportion. (Hint: Cross Multiplication)**

a. $\frac{24}{40} = \frac{n}{50}$

b. $\frac{3}{5} = \frac{n}{50}$

c. A can of spray costs $3.99 for 4 ounces. Another brand costs $5.99 for 6 ounces. Which can is the better buy?

d. If a study revealed that 2 out of 5 families run into trouble with a computer and it is known that 300 families had trouble with the computer, how many families were surveyed?

2. Write each phrase as an algebraic expression. (Hint: "add", "subtract", "divided by", "multiply")

a. $2n + 5$ _____

b. $6n$ _____

c. $\frac{7}{2n}$ _____

d. $3n - 11$ _____

3. Solve the following problems. (Hint: Draw pictures, highlight key information, show all your work)

a. Kim and Cyndi are starting a business tutoring students in math. They rent an office for $400 per month and charge $40 per hour per student. If they have 15 students each for one hour per week how much profit do they make together in a month? (assume 4 weeks per month)

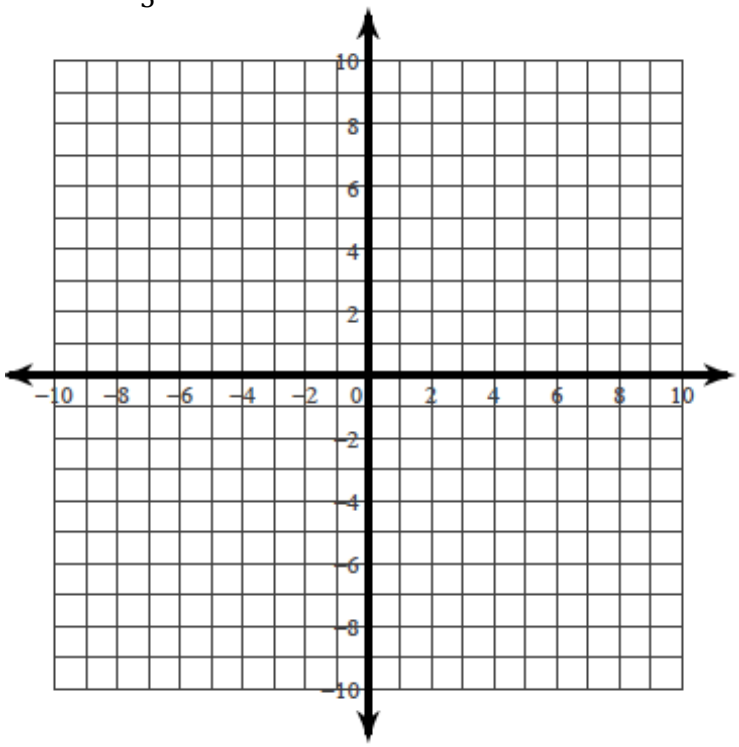
b. What two consecutive numbers have a sum of 25?

c. The angles of a triangle are in the ratio 2: 8: 10. The sum of all the angles in a triangle must equal 180 degrees. What is the degree measure of each angle of the triangle?

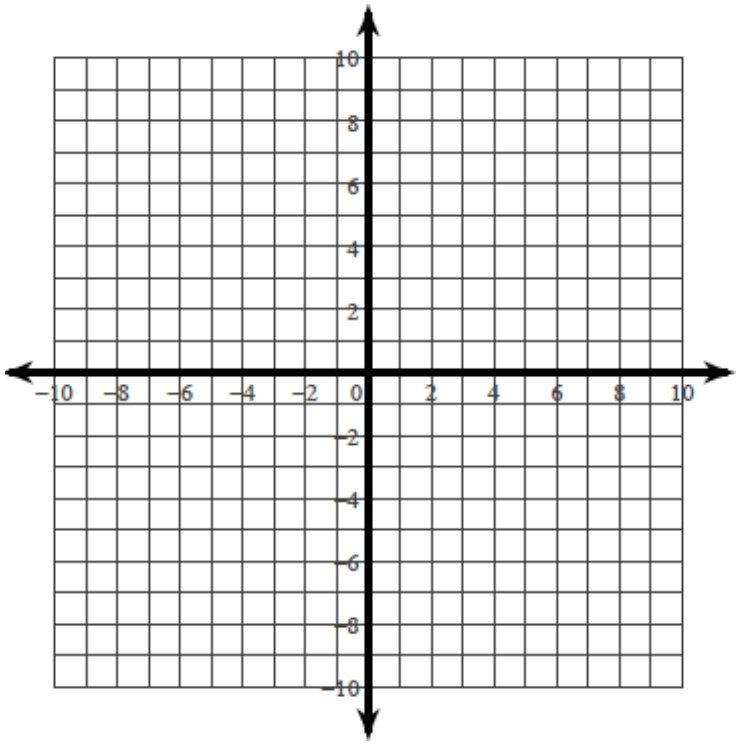
d. The first half of a play is 35 minutes longer than the second half of the play. If the entire play is 155 minutes long, how long is the first half of the play? Write an equation and solve the problem.

4. Graph the following problems. (Hint: $y = mx + b$)

a. $y = \frac{2}{3}x - 5$



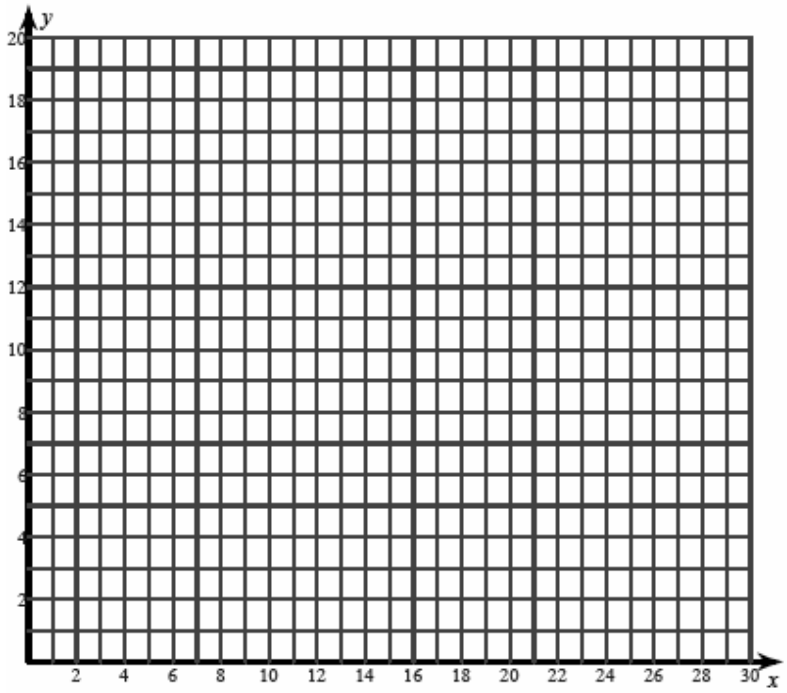
b. $y = -\frac{1}{2}x + 4$



5. You stood in 6 locations on a basketball court and made 20 attempts at a basket from each location. The table shows the distance each location was from the basket and the number of shots made.

Distance from basket (feet)	Shots made
5	18
10	15
15	10
20	10
25	7
30	4

A.) Draw a scatter plot. Estimate the line of best fit by hand.



B.) Write the equation of the line of best fit in slope-intercept form.