

Name \_\_\_\_\_

**Directions:** You have the full class period to complete the exam. All you need is a pencil and a straightedge. No calculators or notes allowed. Be sure to follow directions carefully and show all your work. Good luck!

For problems 1-3, solve each equation, if possible. (9 pts)

1.  $4y - (2y - 7) = 10$

$$y = \frac{3}{2}$$

2.  $5x - 3 = 3x + 2(x - 5)$

∅

3.  $-\frac{4}{5}x - \frac{2}{3} = \frac{7}{15}x + \frac{8}{5}$

$$x = -\frac{34}{19}$$

Solve problems 4-6 by following the problem solving steps. Be sure to define variables, write and solve equations, and answer in complete sentences. (12 pts)

4. The perimeter of a rectangular rug is 26 feet. The length is 7 feet less than three times the width. What are the dimensions of the rug?

The dimensions of the rug are 5 feet by 8 feet.

5. An investor wants to receive \$1000 interest annually from two investments. He has put \$8000 into a money market account paying 5% annual interest. How much should he invest in a stock fund paying 10% annual interest to achieve his goal?

He should invest \$6000 in the stock fund.

6. Peanuts cost \$4 per pound, and cashews cost \$7 per pound. How many pounds of each should be mixed to make 60 pounds of a mixture worth \$5 per pound?

There should be 40 lb. of peanuts and 20 lb. of cashews in the mix.

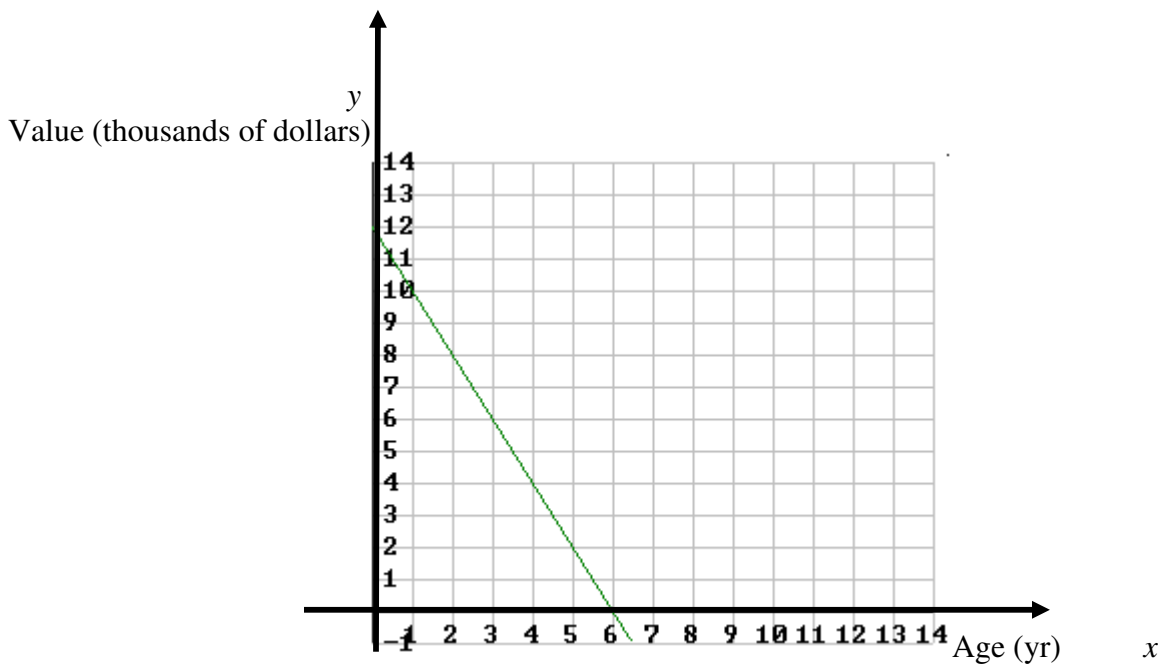
7. Find the  $x$ - and  $y$ - intercepts of the graph of  $2x - 7y = 12$ . Do not graph the line. Give your answers as ordered pairs. (4 pts)

$(6, 0)$  and  $\left(0, -\frac{12}{7}\right)$

The table below shows the value (in thousands of dollars) of an industrial pizza oven at various lengths of time after its purchase. Use the table to answer problems 8-10. You do not have to answer in complete sentences, but includes units of measure where appropriate. (6 pts)

Age (yr)	Value (thousands of dollars)
2	8
4	4
5	2

8. Plot the data in the table as ordered pairs, and draw a straight line passing through the points. Be sure to number your axes!



9. Use your graph to estimate the value of the pizza oven when it was first purchased.

\$12,000

10. What does the  $x$ -intercept of the graph tell you about the pizza oven?

After 6 years it has lost all its monetary value.

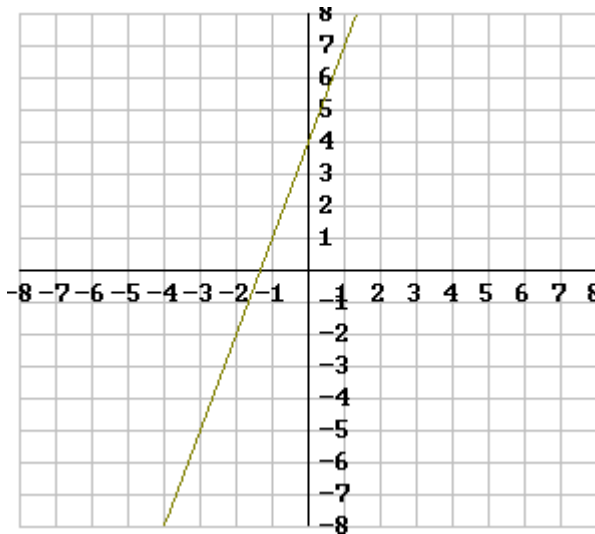
For numbers 11 and 12, refer to the equation below. (6 pts)

$$3y - 9x = 12$$

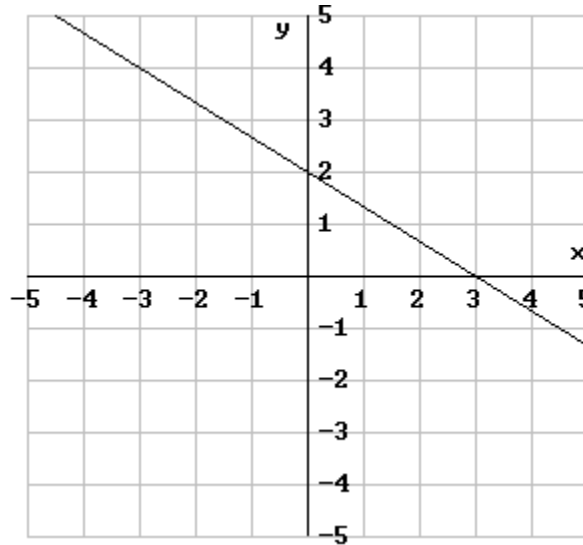
11. Solve the equation for  $y$ .

$$y = 3x + 4$$

12. Make a table of values **with at least three points**. Then sketch a graph of the equation.



13. Find the slope of the line shown in the graph below. (2 pts)



$$m = -\frac{2}{3}$$

14. Find the slope of the line through  $(-6, 4)$  and  $(-4, 7)$ . (3 pts)

$$m = \frac{3}{2}$$

15. Now that you know the slopes, are the lines in problems 13 and 14 parallel, perpendicular, or neither? (2 pts)

Perpendicular because their slopes are negative reciprocals.

16. The table shows a pizza restaurant's daily profit in dollars from selling pizzas. Find the rate of change (slope) and interpret its meaning in a complete sentence. (4 pts)

Number of pizzas sold	Profit (\$)
30	140
50	240

5 dollars per pizza

For every pizza sold, the restaurant makes \$5 more profit.