REVIEW FOR TEST 3

HOMEWORK

1. The circle graph below represents the hair color preferences of 500 people who use hair coloring products.

![Circle Graph]

a. What percent of the people chose to color their hair blonde?

b. How many of the people colored their hair brown?

c. 20% of the people who colored their hair red did so to cover up gray hair. How many people did this?

2. The following graph illustrates how the productivity of a certain farm is related to the use of pesticides. The horizontal axis, labeled $p$, represents the number of pounds of pesticides used during a planting/harvesting season, and the vertical axis, labeled $b$, represents the number of bushels of produce the farm yields.

![Graph]

a. If no pesticide is used, how many bushels of produce will the farm yield?

b. How many pounds of pesticide should be used if the farm is to yield the maximum number of bushels?

c. Based on this graph, is it correct to say that the more pesticides used the greater the number of bushels of produce the farm will yield? EXPLAIN
3. Use the bar graphs to answer to the following questions.

![Bar Graph]

- **Average length of stay in days for people suffering from mental and addictive disorders**
- **Percentage of patients with mental and addictive disorders who are treated as hospital outpatients**

Source: National Association of Psychiatric Health Systems

a. For what year or years shown in the graphs was the average hospital stay less than 18 days?

b. For what year or years shown in the graphs was the percentage of patients treated in hospital outpatients greater than 3% but less than 10%?

c. Describe one trend that you observe from the graphs.

4. In quadrant II, x-coordinates are always _________ and y-coordinates are always _________.

5. Determine (without graphing) if the point (-1,4) is on the graph of \( y = -x + 5 \).

6. The point \((x, 9)\) is on the graph of \( y = 2x + 5 \). What is \(x\)?

7. Find the slope of the line containing \((5, -2)\) and \((-4, -3)\).

8. Describe a line that has a
   a. positive slope
   b. negative slope
   c. zero slope
   d. undefined slope
9. Match the graphs given with the appropriate equations.

A. \( y = -2x + 3 \)  
B. \( y = 2x - 3 \)

C. \( y = \frac{1}{2}x + 3 \)  
D. \( y = \frac{1}{4}x - 3 \)

10. Determine the equations for the lines below.

a. ________  

b. ________  

c. ________
Graph the following.

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

12. $2x + y = 5$

13. $x + 3 = 5$

14. $-3x - y = 4$

15. $x + 2y = 6$

16. $y = -3$
17. Two machines can pave a stretch of road in 11 days. In how many days will it take 3 machines to pave the same stretch of road?

A. \( \frac{2}{3} = \frac{11}{x} \)  
B. \( \frac{2}{11} = \frac{3}{x} \)  
C. \( \frac{2}{x} = \frac{3}{11} \)  
D. \( \frac{2}{x} = \frac{11}{3} \)

18. Two cans of juice are used to make three gallons of punch. How many cans of punch are needed to make five gallons of punch?

A. \( 10 = 3x \)  
B. \( 5x = 6 \)  
C. \( 2x = 15 \)  
D. \( 5x = 10 \)

19. If \( m \) varies inversely as \( n^3 \), and \( m = 12 \) when \( n = 2 \), find \( m \) when \( n = 4 \).

20. Hooke's Law for an elastic spring states that the distance a spring stretches varies directly as the force applied. Suppose a force of 9 lb stretches a certain spring 15 in. How much will a force of 30 lb stretch this spring?
Answers

Review for Test 3

Homework

1. a. 42%
   b. 31% of 500 = 155
   c. 9% of 500 = 45
   20% of 45 = 9

2. a. 10,000 bushels
   b. 300 pounds
   c. No; less bushels yielded when more than 300 pounds of pesticide were used

3. a. 1994
   b. 1992, 1993
   c. Average length of stay is decreasing; percentage of patients treated as hospital outpatients is increasing

4. negative; positive

5. No; 4 = -(-1)+5
   4 = 1+5; False

6. X = 2; y = 2x + 5

7. \( \frac{1}{9} \)

8. a. Rising left to right
   b. Falling left to right
   c. Horizontal line
   d. Vertical line

9. A \( \rightarrow \) C
   B \( \rightarrow \) 0

10. \( y = mx + b \)
    \( y = -x + 2 \)
    \( m = -\frac{1}{1} = -1 \)
    \( y = 2x - 3 \)
    \( m = \frac{2}{1} = 2 \)

11. \( x = 3 \)
    \( y = -2x + 5 \)

12. \( x = 2 \)
    \( y = -3x - 4 \)

13. \( y = -\frac{1}{2}x + 3 \)
    \( y = \frac{1}{2}x - 3 \)

14. \( \frac{1}{1} \) days
    \( \frac{2}{3} \) days
    \( \frac{2}{5} \) days

15. \( x = \frac{3}{2} \)
    \( m = \frac{n}{3} \)

16. \( m = \frac{12}{3} \)
    \( m = \frac{12}{3} \)
    \( m = \frac{2}{3} \)

17. \( \frac{x}{3} \) gallons

18. \( \frac{2}{3} \) gallons
    \( \frac{3}{5} \) gallons

19. \( m = \frac{3}{2} \)
    \( m = \frac{1}{5} \)

20. 50 in.