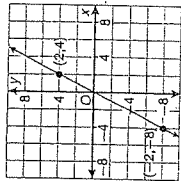


Cumulative Test

1. (38) Find the GCF of $6x^2y^3 + 9xy^2z^2$.

2. (40) A square tile has a side length of $9x$ inches. What is the area of the tile?

3. (44) Determine the slope of the given line.



4. (45) Translate the sentence below into an inequality.

The product of a number and 3 is greater than 5.

Simplify problems 5-8.

5. (39) $\frac{m^2}{n} \left(\frac{n^2}{n^2} + \frac{2n^3}{x} \right)$

6. (37) $\frac{1}{y^{-3}}$

7. (18) $3a^2b^3 - 2ab^2 + 3b^2a - 2b^3a^2$

8. (12) $(37) \cdot 9x \cdot \left(\frac{1}{37}\right)$

9. (41) A hiker walks at a constant speed, as shown in the table below. What is the rate of change?

| | | | | |
|------------------|---|----|----|----|
| Time (hours) | 2 | 4 | 6 | 8 |
| Distance (miles) | 6 | 12 | 18 | 24 |

Solve problems 15-19.

15. (31) $\frac{5}{7} = \frac{k-2}{14}$

16. (28) $-3n = 2n + 5$

17. (26) $3z - (2 - z) - 5 = 9$

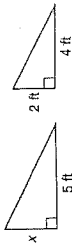
18. (23) $3 = -6a - 1$

19. (19) $\frac{5}{6} - y = \frac{2}{9}$

20. (35) At a bakery, bagels are \$2 and muffins are \$3. Let x be the number of bagels sold. Let y be the number of muffins sold. The equation $2x + 3y = 150$ shows that the bakery made \$150 selling bagels and muffins. Find the intercepts and explain what each means.

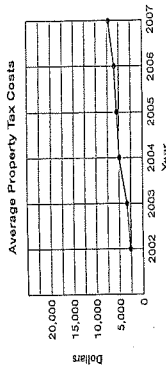
10. (42) Concert tickets sell for \$12.50 each. On Friday night, 375 tickets are sold. If 20% of the money earned from ticket sales is donated to charity, how much is donated to charity?

11. (36) The figures below are similar. Find x .



12. (43) Determine the values for which the rational expression $\frac{3a+2}{a+5}$ is undefined.

13. (27) A town created the graph below to show the average cost of property taxes each year. Explain why the graph may be misleading.



14. (Inv. 4) Provide a counterexample for the following statement: If a teacher likes math, then she is a math teacher.

1.
$$\begin{array}{r} 3(6x^2y^3 + 9xy^2z) \\ \times \quad 2x^2y^3 + 3xy^2z \\ \hline y^2(2xy^3 + 3y^2z) \\ \hline 3xy^2 \end{array}$$

2.
$$\begin{array}{c} 9x \\ \square \\ 9x \end{array}$$

 AREA
 $9x \cdot 9x = 81x^2$
 sq. in.

3.
$$\begin{array}{r} (2y)(-3-z) \\ \#2 \quad \#1 \quad \# \\ \hline 4(-8) = 12 = 4 = 3 \end{array}$$

4. $3 \cdot n > 5$

5.
$$\frac{m^2}{n^1} \left(\frac{m^2}{n^2} + \frac{2n^3}{x} \right) =$$

$$\frac{m^4}{n^3} + \frac{2n^3m^2}{n^1x}$$

6.
$$\frac{1}{y^3} \cdot y^3 = 1$$

 * Negative exp. have to move.

7.
$$\begin{array}{r} 3ab^3 - 2ab^2 + 3b^2 - ab^2 \\ \hline 1a^2b^3 + 1ab^2 \end{array}$$

8.
$$\frac{27 \cdot 9x}{1} \cdot \frac{1}{37} = \frac{9x}{1} \text{ or } 9x$$

 Maughn left-handed cancel!

9.
$$\begin{array}{r} (2,6)(4,12) \\ \#1 \quad \#2 \quad \# \\ \hline 12-6 = \frac{6}{4-2} = \frac{6}{2} = 3 \text{ mph} \end{array}$$

10. Money made = $375 \cdot 12.5 = 4687.50$
 20% of this amount = $.20 \cdot 4687.50 = 937.50$

Subtract "n's"

$$\frac{m^4}{n^1} + \frac{2n^3m^2}{x}$$

$$\begin{array}{r} 4687.5 \quad 375 \\ \times 2 \\ \hline 93750 \\ \hline 1875 \\ \hline 7500 \end{array}$$

11.
$$\begin{array}{r} x = z \\ 5 = 4 \\ 4 \cdot x = 2 \cdot 5 \\ 4x = 10 \end{array}$$

 $10 \div 4 = 2.5$
 $x = 2.5$

12. If $a = -5$, this would be undefined. You can't have denominator equal zero!

13. Intervals are too large. Makes data look closer than it really is.

14. A science teacher could like math too.

15.
$$\begin{array}{r} 5 \cdot 14 = 7 \cdot (k-2) \\ 70 = 7k - 14 \\ +14 \quad +14 \\ \hline 84 = 7k \\ \div 7 \quad \div 7 \\ \hline 12 = k \end{array}$$

16.
$$\begin{array}{r} -3n = 2n + 5 \\ -2n \quad -2n \\ \hline -5n = 5 \\ \div -5 \quad \div -5 \\ \hline n = -1 \end{array}$$

17.
$$\begin{array}{r} 3z - (2-z) - 5 = 9 \\ 3z - 2 + z - 5 = 9 \\ 4z - 7 = 9 \\ +7 \quad +7 \\ \hline 4z = 16 \\ \div 4 \quad \div 4 \\ \hline z = 4 \end{array}$$

18.
$$\begin{array}{r} 3 = -6a - 1 \\ +1 \quad +1 \\ \hline 4 = -6a \\ \div -6 \quad \div -6 \\ \hline -\frac{2}{3} = a \end{array}$$

19.
$$\begin{array}{r} 5 - y = \frac{2}{9} \cdot \frac{18}{18} \\ -5 \quad -5 \\ \hline -y = \frac{2}{9} - \frac{15}{9} \\ +y \quad +y \\ \hline y = -\frac{11}{9} \div -1 \\ \hline y = \frac{11}{9} \end{array}$$

20.
$$\begin{array}{r} 2x + 3y = 150 \\ 8x = 150 \\ \div 8 \quad \div 8 \\ \hline x = 18.75 \end{array}$$

$$\begin{array}{r} 2x + 3y = 150 \\ 2(18.75) + 3y = 150 \\ 37.5 + 3y = 150 \\ -37.5 \quad -37.5 \\ \hline 3y = 112.5 \\ \div 3 \quad \div 3 \\ \hline y = 37.5 \end{array}$$

If you sold no muffins, you'd need to sell 75 bagels to make \$150.

If you sold no bagels, you'd need to sell 50 muffins to make \$150.