Name _____ Date _____ Class _____

Cumulative Test 13A

1. (47) A sporting goods store is having a sale of 20% off all skis. What is the discount and new price of a pair of skis that originally cost $220?

2. (61) Simplify $\sqrt{27}$ using perfect squares.

Find the product for problems 3–4.

3. (60) $(y+7)(y-7)$

4. (58) $-2xy(-4y^2+3x+5z)$

5. (18) Simplify the expression

$7m^2n^2 - 5m^2n + 3m^2n - 4m^2n^2$.

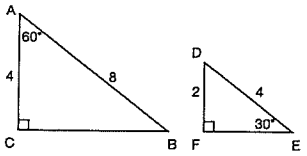
6. (49) The equation $y = 3x - 3$ is in slope-intercept form. Graph $y = 3x - 3$ on a coordinate grid.

7. (46) A block of ice in the shape of a cube has a volume of 729 cubic inches. What is the side length of the block of ice?

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

12,306 is less than or equal to the product of 3000 and a number.

9. (36) The figures below are similar. Find $m\angle D$.



10. (65) Write an equation in slope-intercept form for the line that passes through (2, –2) and is parallel to $y = 3x - 2$.

11. (62) Linda planted dahlias in her flower garden. The heights of the dahlias in inches are shown below. Create a stem-and-leaf plot of the data.

10, 48, 36, 38, 15, 12, 22, 24, 28, 42, 18
45, 37, 36, 24, 22, 15, 26, 33, 32, 42, 30,
33, 24, 29, 15, 20, 29, 30, 31

12. (59) Solve the systems of equations by substitution.

$3x + y = 6$

$2x + 3y = -10$

13. (63) Solve the system of equations by elimination.

$-3x + 6y = 15$

$3x + 2y = 17$

14. (52) Write in point-slope form the equation of a line that has a slope of –6 and passes through point (1, 2).

15. (43) Determine the values for which the rational expression $\frac{7x-1}{x-2}$ is undefined.

16. (57) Jim visits the barber every 9 days. Ralph visits the barber every 24 days. Pete visits the barber every 12 days. If all three visit the barber on the same day, in how many days will they all visit the barber on the same day again?

17. (64) If y varies inversely as x and $y = 8$ when $x = 7$, find x when $y = 4$.

18. (48) The following data show scores for a bowling team. Identify any outliers. What is the effect of any outliers on measures of central tendency?

172, 67, 185, 192, 201, 167, 183, 170, 171

19. (38) Factor $2c^2d^3 + 2c^4d$ completely.

20. (56) Write an equation for a direct variation that includes the point (4, 16).

SCORE: _____

1. $220 \times 0.20 = \$44$ discount

$220 - 44 = \$176$ new price

2.

$\sqrt{27} = \sqrt{9 \cdot 3} = \sqrt{9} \cdot \sqrt{3}$

$= 3\sqrt{3}$

3. $(y+7)(y-7)$ use FOIL

$y^2 - 7y + 7y - 49$

$y^2 - 49$

4. $-2xy(-4y^2 + 3x + 5z)$ Use Distributive Property

$-2xy(-4y^2) + -2xy(3x) + -2xy(5z)$

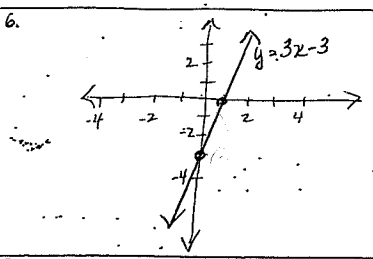
$8xy^3 + -6x^2y + -10xyz$ OR

$8xy^3 - 6x^2y - 10xyz$

5. $\underline{7m^2n^2} - \underline{5m^2n} + \underline{3m^2n} - \underline{4m^2n^2}$ Combine like Terms

$3m^2n^2 - 2m^2n$

6.



7. $V = l \cdot w \cdot h$ Cube - all sides are equal

$\sqrt[3]{729} = 9$ in.

8. $12{,}306 \leq 3000n$

9. $m\angle D = 60°$

(Corresponding angles of similar triangles are congruent)

10. $y = 3x - 2$ (parallel lines have the same slope)

$m = 3$

(2, -2) $y - y_1 = m(x - x_1)$

$y - (-2) = 3(x - 2)$

$y + 2 = 3x - 6$

$-2 \quad -2$

$y = 3x - 8$

11. Heights of Dahlias

Stem	Leaf
1	0 2 5 5 5 8
2	0 2 2 4 4 4 6 8 9 9
3	0 0 1 2 3 3 6 6 7 8
4	2 2 5 8

1	0 5 2 8 5 5
2	2 4 8 9 2 6 4 7 9 0 9
3	6 8 7 6 3 2 0 3 0 1
4	8 2 5 2

Key 3|2 = 32in

12. $3x + y = 6 \rightarrow y = -3x + 6$

$2x + 3y = -10$

$2x + 3(-3x + 6) = -10$

$2x + -9x + 18 = -10$

$-7x + 18 = -10$

$-18 \quad -18$

$\frac{-7x}{-7} = \frac{-28}{-7}$

$x = 4$

$y = -3(4) + 6$

$y = -12 + 6$

$y = -6$

$(4, -6)$

13. $-3x + 6y = 15$

$+ \; 3x + 2y = 17$

$\frac{8y}{8} = \frac{32}{8}$

$y = 4$

$3x + 2(4) = 17$

$3x + 8 = 17$

$-8 \quad -8$

$\frac{3x}{3} = \frac{9}{3}$

$x = 3$

$(3, 4)$

14. $(y - y_1) = m(x - x_1)$

$y - 2 = -6(x - 1)$

15. $\frac{7x-1}{x-2}$ Denominator cannot equal zero.

$x - 2 \neq 0$

$+2 \quad +2$

$x \neq 2$

16. Find LCM

3 |	9	24	12
4 |	3	8	4
	3	2	1

$LCM = 3 \cdot 4 \cdot 3 \cdot 2 \cdot 1$

$= 72$

They will get a haircut on the same day in 72 days.

17. $x_1 y_1 = x_2 y_2$

$7(8) = 4x$

$\frac{56}{4} = \frac{4x}{4}$

$x = 14$

18. 67, 167, 170, 171, 172, 183, 185, 192, 201

Q1: $\frac{167+170}{2} = 168.5$ | median | Q3: $\frac{185+192}{2} = 188.5$

$x < 168.5 - 1.5(188.5 - 168.5)$

$x < 138.5$

$x > 188.5 + 1.5(20)$

$x > 218.5$

67 is the only outlier. With the outlier the mean is about 168 & the median is 172. Without the outlier the mean is about 180 & the median is 177.5. There is no mode.

19.

2 |	$2c^2d^3 + 2c^4d$
c^2 |	$c^2d^3 + c^4d$
d |	$d^3 + c^2d$
	$d^2 + c^2$

$2c^2d(d^2 + c^2)$

20. $y = kx$

$16 = k(4)$

$k = 4$

$y = 4x$