

Algebra 2 Unit 3B Test Review

Name: Key Date: _____

The best way to study for this test is by practicing! Be able to do all the problems that were in your homework and notes. Below are additional practice problems.

Practice Problems for the Test:

Factor completely: A. $x^3 - 125y^3$

$$(x - 5y)(x^2 + 5xy + 25y^2)$$

B. $64a^3 + 8y^3$

$$(4a + 2y) \cdot$$

$$(16a^2 - 8ay + 4y^2)$$

oops! Forgot to check my GCF!

$$2(2a + y) \cdot 4(4a^2 - 2ay + y^2)$$

$$= 8(2a + y)(4a^2 - 2ay + y^2)$$

C. $4x^4 + 12x^2y^3 + 9y^6$

$$(2x^2 + 3y^3)(2x^2 + 3y^3)$$

$$= (2x^2 + 3y^3)^2$$

D. $a^2 + a - 20$

$$(a + 5)(a - 4)$$

E. $6x^2 - 5x - 6$

product $-36 \Rightarrow -9, +4$
Sum -5

$$= (6x^2 - 9x) + 4x - 6$$

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

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

F. $3a^2bc^5 - 9a^3bc^6 + 12a^2b^3c^6$

$$= 3a^2bc^5(1 - 3ac + 4b^2c)$$

G. $49 - 25y^{2n}$

$$= (7 + 5y^n)(7 - 5y^n)$$

H. $4x^3 + 4x^2 - 6x + 6$

~~$$= 2(2x^3 + 2x^2 - 3x + 3)$$~~

~~$$= 2 \cdot 2x^2(x + 1) - 6(x + 1)$$~~

$$4x^2(x + 1) - 6(x + 1)$$

$$= (x + 1)(4x^2 - 6)$$

$$= (x + 1) \cdot 2(2x^2 - 3)$$

$$= 2(x + 1)(2x^2 - 3)$$

change to

I. $x^2 + 25y^2$

prime

J. $100x^2 - 100$

$$= 100(x^2 - 1)$$

$$= 100(x + 1)(x - 1)$$

Review Problems:

Simplify completely. K. $\left(\frac{12x^2y^3z^6}{4x^{-1}y^7z^{-8}}\right)^{-1}$

$$= \left(\frac{3x^3z^{14}}{y^4}\right)^{-1}$$

$$= \boxed{\frac{y^4}{3x^3z^{14}}}$$

L. $\frac{(5)^{-2}}{(5)^5}$

$$= 5^{-7}$$

$$= \frac{1}{5^7}$$

M. $(x^2y^2z^2)^n - (xyz)^{2n}$

$$x^{2n}y^{2n}z^{2n} - x^{2n}y^{2n}z^{2n}$$

$$= \boxed{0}$$

N. $(-ab)^{-1}$

$$= \frac{1}{-ab}$$

O. ab^{-1}

$$= \frac{a}{b}$$

P. $(x^n - y^n)(x^n + y^n + z^n)$

$$x^{2n} + x^n y^n + x^n z^n$$

$$- x^n y^n - y^{2n} - y^n z^n$$

$$= x^{2n} + x^n z^n - y^{2n} - y^n z^n$$

Q. $(a-3b)^2$

$$= (a-3b)(a-3b)$$

$$= \boxed{a^2 - 6ab + 9b^2}$$

Find the slope of the line between the points: R. $(a,0)$ and $(b,0)$

$$m = \frac{\Delta y}{\Delta x} = \frac{0-0}{b-a} = \boxed{0}$$

S. $\left(\frac{1}{2}, \frac{3}{4}\right)$ and $\left(0, -\frac{5}{6}\right)$

$$m = \frac{-5/6 - 3/4}{0 - 1/2}$$

$$m = \frac{-\frac{20}{24} - \frac{18}{24}}{-12/24} = \frac{-38}{24} \cdot \frac{24}{-12}$$

$$m = \frac{-38}{-12} = \boxed{\frac{19}{6}}$$

Solve: T. $-\left(\frac{1}{2}a - 3a\right) = \frac{3}{5}(a-2)$

$$10 \left[-\frac{1}{2}a + 3a = \frac{3}{5}a - \frac{6}{5} \right]$$

$$-5a + 30a = 6a - 12$$

$$+25a = 6a - 12$$

$$19a = -12$$

$$a = \boxed{\frac{12}{19}}$$

U. $\left[-\frac{2}{7}(x-2) \geq x\right] \cdot 7$

$$-2(x-2) \geq 7x$$

$$-2x + 4 \geq 7x$$

$$4 \geq 9x$$

$$\frac{4}{9} \geq x$$

$$x \leq \boxed{\frac{4}{9}}$$

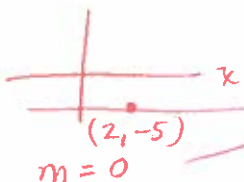
V. $x-2 = x-2$

$$-2 = -2$$

True for ALL Real #'s

\Rightarrow infinitely many solutions

W. Find the equation of the line that is parallel to the x-axis and goes through the point $(2, -5)$.



Horiz $\Rightarrow y = -5$