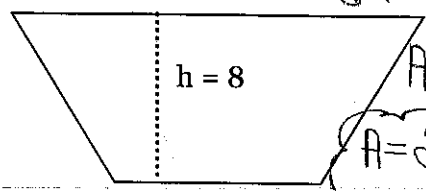
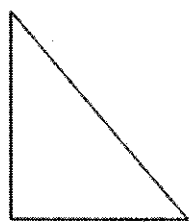


Unit 6: Polynomials REVIEW SHEET (SEMESTER)

<p>1.) Find the area of the trapezoid using the formula: $A = \frac{1}{2}h(b_1 + b_2)$ $A = \frac{1}{2}(8)(4x+3+2x-5)$ $4x+3$ $A = \frac{1}{2}(8)(6x-2)$  $A = 4(6x-2)$ $A = 24x - 8$ <u>units²</u></p>	<p>2.) What is the leading coefficient when the product is written in standard form? $-2y^4(3y^3 - xy)$ $-6y^7 + 2xy^5$ $2xy^5 - 6y^7$ <u>Leading coeff: 2</u></p>
<p>3.) Kathy makes brownies using a square pan that has side measure of x. She decides she needs a new pan that has is 6 inches longer on each side. What is the area of her new brownie pan? $(x+6)(x+6)$ <u>ARROW = $x^2 + 12x + 36$</u></p>	<p>4.) What is the product of $(2x + 3)$ and $(x - 2)$? $(2x+3)(x-2)$ $2x^2 - 4x + 3x - 6$ <u>$2x^2 - x - 6$</u></p>
<p>5.) The expression $2x^2 - 6x + 4$ represents the area of a square. The expression $9x^2 + 7x - 1$ represents the area of a rectangle. What is the combined area of the two shapes? $(2x^2 - 6x + 4) + (9x^2 + 7x - 1)$ <u>$11x^2 + x + 3$</u></p>	<p>6.) A square has a side length of $2x - 4$. What is the difference between the area of the square and the perimeter of the square? <u>ARROW</u> <u>PERIMETER</u> $(2x-4)(2x-4)$ $4(2x-4)$ $4x^2 - 8x - 8x + 16$ $8x - 16$ $4x^2 - 16x + 16 - (8x - 16) = 4x^2 - 24x + 32$ <u>32</u></p>
<p>7.) Simplify the expression: $(4x^3y^2)^3(2x^2y^5)$ $64x^9y^6 \cdot 2x^2y^5$ <u>$128x^{11}y^{11}$</u></p>	<p>8.) Write an expression equivalent to $\frac{x^{12}y^8}{x^8y^{12}}$ if $x \neq 0$ and $y \neq 0$. $x^{12-8}y^{8-12} = x^4y^{-4} = \frac{x^4}{y^4}$ <u>$\frac{x^4}{y^4}$</u></p>
<p>9.) The perimeter of the triangle below is $7xy^2 + 10x - 2y$. Find the length of the missing side.  $7xy^2 + 10x - 2y - (5xy^2 + 3x)$ <u>$2xy^2 + 7x - 2y$</u></p>	

10.) Simplify the expression below:

$$(4xy^2)(3x^4y^3)$$

$$12x^5y^5$$

11.) Find the perimeter of a triangle with the following side lengths:

$$y, -2y + 4, \text{ and } 7y - 3$$

$$y + (-2y + 4) + (7y - 3)$$

$$6y + 1$$

12.) Find the difference:

$$(-7x^2 + 4x + 6) - (-3x^2 + 5x - 1)$$

$$-7x^2 + 4x + 6 + 3x^2 - 5x + 1$$

$$-4x^2 - x + 7$$

13.) Simplify the expression below:

$$3x(4x^3 - 9x + 5) - x(7x^2 + 2x - 6)$$

$$12x^4 - 27x^2 + 15x - 7x^3 - 2x^2 + 6x$$

$$12x^4 - 7x^3 - 29x^2 + 21x$$

14.) Find the product: $(r - 6)^2$

$$(r - 6)(r - 6)$$

$$r^2 - 6r - 6r + 36$$

$$r^2 - 12r + 36$$

15.) Simplify:

$$\frac{p^5q^{-3}}{pq^2}$$

$$p^{5-1}q^{-3-2} = p^4q^{-5}$$

$$\frac{p^4}{q^5}$$

16.) Simplify:

$$4x + y^3(4x + y^3)^2$$

4x	10x ²	4xy ³
+y ³	4xy ³	y ⁶

$$10x^2 + 8xy^3 + y^6$$

17.) Which expression is equivalent to $\frac{y^{-4}}{y^4}$?

A. y^8

B. $\frac{1}{y^8}$

C. 1

D. -1

18.) What is the coefficient of the x term when the expression below is simplified?

$$6x(3x^2 - 2x) + 5x(-x^2 + 7x)$$

$$18x^3 - 12x^2 - 5x^3 + 35x^2$$

$$13x^3 + 23x^2$$

19.) Simplify:

$$\frac{10a^4b - 25a^2b^3 - 5ab}{5ab}$$

$$\frac{10a^4b}{5ab} - \frac{25a^2b^3}{5ab} - \frac{5ab}{5ab}$$

$$2a^3 - 5ab^2 - 1$$

20.) Write an equivalent expression for the monomial below:

$$(-9m^4r^2s^3)^3$$

$$-729m^{12}r^6s^9$$

21.) Simplify:

$$\frac{12a^3b^2c}{18ab^4c}$$

$$\frac{2}{3}a^2b^{-2}c^0$$

$$\frac{2a^2}{3b^2}$$

22.) Which expression is equivalent to $p^{-7}p^4$ when $p \neq 0$?

$$p^{-3}$$

A. $\frac{1}{p^3}$

B. p^3

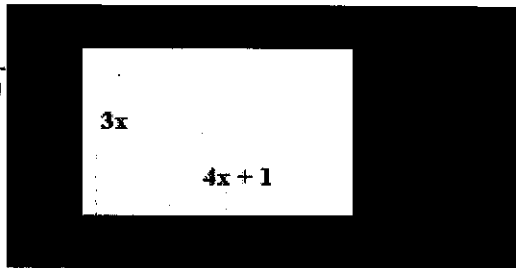
C. p^{11}

D. $p^{\frac{7}{4}}$

23.)

Find the area of the shaded region:

$ARWA = ARWA - ARWA$
 Shaded big small
 \downarrow \downarrow
 $10x(4x-2) - 3x(4x+1)$



$24x^2 - 12x - (12x^2 + 3x)$
 $24x^2 - 12x - 12x^2 - 3x$

$4x-2$

$12x^2 - 15x$

24.) A rectangular box has dimensions $(x+6)$, $(x+2)$, and $(x-1)$. Write an expression that represents the volume of the box.

$V = lwh$

$V = (x+6)(x+2)(x-1)$

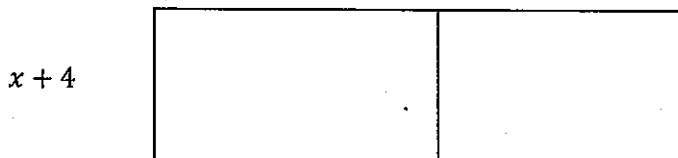
$V = (x^2 + 8x + 12)(x-1)$

x^3	$8x^2$	$12x$
$-x^2$	$-8x$	-12

$x^3 + 7x^2 + 4x - 12$

25.) Kerry wants to remodel his house by knocking down a wall between two adjoining rectangular rooms. The width of both rooms is $x+4$. The length of Room 1 is $3x+6$ and the length of room 2 is $(3x-3)$. Write an expression that models the area of the new room after they all is knocked down.

$3x+6 + 3x-3 = 6x+3 = 10x+3$



$(10x+3)(x+4)$

$10x^2 + 24x + 3x + 12$

$ARWA = 10x^2 + 27x + 12$

26.) Find the product:

$(2x-5)(x^2+x-3)$
 $2x \begin{matrix} x^2 & +x & -3 \\ 2x^3 & 2x^2 & -6x \\ -5 & -5x^2 & -5x & 15 \end{matrix}$

$2x^3 - 3x^2 - 11x + 15$

27.) A rectangle has a perimeter of 68.

- Let x equal the width of the rectangle.
- Let y equal the area of the rectangle.

Write a quadratic binomial to model the area of the rectangle.

$y = -x^2 + 34x$

see pg. 4

28.) David has a rectangle and a right triangle.

- The length of the rectangle is 5 less than its width. $L = W - 5$
- The length of the shorter leg of the triangle is equal to the rectangle's width. W
- The length of the longer leg of the triangle is twice the length of the rectangle. $2(W-5) = 2W-10$

Write a function, $f(w)$, that represents the combined area of the rectangle and triangle.

ARWA of RECT

ARWA of TRI

$A = W(W-5)$

$A = \frac{1}{2}bh$

$A = W-5W$

$2W^2 - 10W$

$A = W^2 - 5W$

$A = \frac{1}{2}(W)(2W-10)$

$W^2 - 5W + W^2 - 5W$

$$27.) p = 2L + 2W$$

$$2L + 2X = 68$$

$$2L = -2X + 68$$

$$L = -X + 34$$

$$Q = LW$$

$$Y = LX$$

$$Y = (-X + 34)(X)$$

$$Y = -X^2 + 34X$$