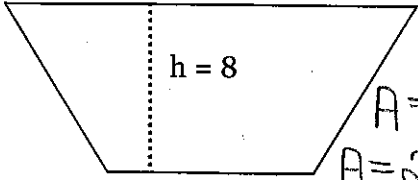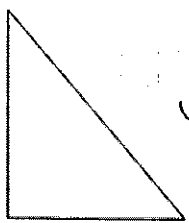## Unit 7: Polynomials REVIEW SHEET (HONORS)

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

h = 8

2x - 5

$A = 4(6x-2)$
$A = 24x - 8$

2.) Write the product in standard form.
$-2y^4(3y^3 - xy)$

$-6y^7 + 2xy^5$

$2xy^5 - 6y^7$

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?

$(x+6)(x+6)$
$x^2 + 12x + 36$

4.) What is the product of $(2x + 3)(x - 2)$?

$(2x+3)(x-2)$
$2x^2-4x+3x-6$
$2x^2-x-6$

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?

$(2x^2-6x+4)+(9x^2+7x-1)$

$11x^2+x+3$

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?

$P = 4(2x-4)$
$P = 8x-16$

$A = (2x-4)(2x-4)$
$= 4x^2-8x-8x+16$
$= 4x^2-16x+16 - (8x-16)$
$A-P = 4x^2-24x+32$

7.) Simplify the expression:

$-3(4y^2 - 1) + (5y + 1)^2$

$-12y^2+3$ $(5y+1)(5y+1)$

$-12y^2 + 3 + 25y^2 +10y +1$
$13y^2 +10y +4$

8.) 8.) Find the **area** of the rectangle

4x + 5y

8x + 3y

$(8x+3y)(4x+5y)$
$32x^2+40xy+12xy+15y^2$

$32x^2+52xy+15y^2$

9.) The perimeter of the triangle below is $7xy^2 + 10x - 2y$. Find the length of the missing side.

$3xy^2$

$2xy^2 + 3x$

$3xy^2+2xy^2+3x$
$5xy^2+3x$

$7xy^2+10x-2y-(5xy^2+3x)$

$2xy^2+7x-2y$

10.) Simplify the expression below: $$(4xy^2)^2(3x^4y^3)$$ $\left(10x^2y^4\right)\left(3x^4y^3\right)$ $48x^6y^7$	**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: $(4 - 2b)(4 + 2b)$. $16 + 8b - 8b - 4b^2$ $16 - 4b^2$	**15.)** A rectangle has a length of x inches and a width 3 inches less than the length. x (side), $x - 3$ (bottom) If the dimensions were doubled, what would the area of the rectangle be? $2(x-3) \quad 2(x) \quad 2x(2x-6)$ $2x-6 \quad\quad 2x \quad\quad 4x^2-12x$
16.) Simplify: $$(4x + y^3)^2$$ $\left(4x + y^3\right)\left(4x + y^3\right)$ $16x^2 + 4xy^3 + 4xy^3 + y^6$ $16x^2 + 8xy^3 + y^6$	**17.)** Which expression is equivalent to $\dfrac{y^{-4}}{y^4}$? y^{-4-4} A. y^8 B. $\dfrac{1}{y^8}$ y^{-8} C. 1 D. -1
18.) What is the leading coefficient when the expression below is simplified? $$6x(3x^2 - 2x) + 5x(-x^2 + 7x)$$ $18x^3 - 12x^2 - 5x^3 + 35x^2$ $13x^3 + 23x^2$ 13	**19.)** Simplify: $$\frac{10a^4b - 25a^2b^3 - 5ab}{5ab}$$ $2a^3 - 5ab^2 - 1$
20.) Write an equivalent expression for the monomial below: $$(-9m^4)^3$$ $(-9)^3(m^4)^3$ $-729m^{12}$	**21.)** Simplify: $$\frac{12a^3b^2c}{18ab^4c}$$ $\frac{2}{3}a^2b^{-2} \qquad \frac{2a^2}{3b^2}$

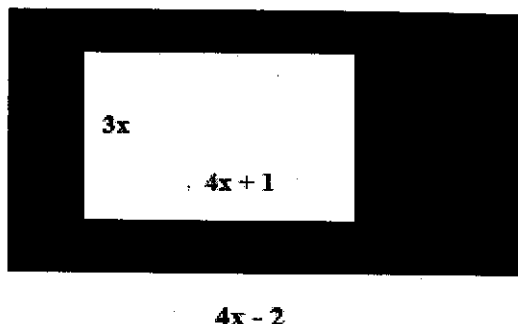**22.)** Which expression is equivalent to $p^{-7}p^4$ when $p \neq 0$?

p^{-7+4}
p^{-3}

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

B. p^3

C. p^{11}

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

23.)

Find the area of the shaded region:

big
$6x(4x-2)$

small
$3x(4x+1)$

$6x$

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

$\boxed{12x^2 - 15x}$

$3x$

$4x+1$

$4x-2$

24.) Find the product:

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

	x^2	$+x$	-3
$2x$	$2x^3$	$2x^2$	$-6x$
-5	$-5x^2$	$-5x$	$+15$

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

25.) The length of a rectangular courtyard is $(x-2)$ and the width is $(5x+4)$. Write an expression to reprsent the area of the courtyard.

$(5x+4)(x-2)$
$5x^2 - 10x + 4x - 8$
$5x^2 - 6x - 8$

26.) A rectangular box has dimensions $(x+6), (x+2), and (x-1)$. Write an expression that represents the **volume** of the box.
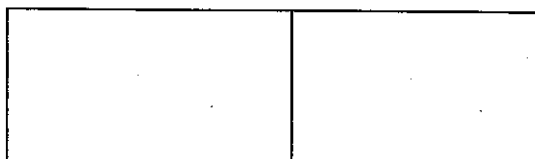
$V = lwh$
$= (x+6)(x+2)(x-1)$
$(x^2 + 8x + 12)(x-1)$
$V = x^3 + 7x^2 + 4x - 12$

	x^2	$+8x$	$+12$
x	x^3	$8x^2$	$12x$
-1	$-x^2$	$-8x$	-12

27.) Kerry wants to remodel his house by knocking down a wall between two adjoining rectanguar 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 thew all is knocked down.

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

$x+4$

$x+4$

$(6x+3)(x+4)$
$A = 6x^2 + 27x + 12$

28.) What is the coefficient of the p term when the expression below is simplified?	29.) A rectangle has a perimeter of 68.

28.) What is the coefficient of the p term when the expression below is simplified?

$$(4p - 18) - (-p + 2)$$

$4p - 18 + p - 2$

$5p - 20$

5

29.) A rectangle has a perimeter of 68.

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

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

$P = 2L + 2W$
$68 = 2L + 2x$
$68 - 2x = 2L$
$34 - x = L$

$A = LW$
$y = (34 - x)(x)$
$y = 34x - x^2$
$y = -x^2 + 34x$

30.) 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. $L = 2(W-5)$ $L = 2W - 10$

$W = W$

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

RECT. $A = LW$
AREA $A = (W-5)(W)$
$A = W^2 - 5W$

$(W^2 - 5W) + (W^2 - 5W)$ TRI.

$\boxed{2W^2 - 10W}$

AREA

$A = \frac{1}{2}(W)(2W - 10)$
$A = \frac{1}{2}(2W^2 - 10W)$
$A = W^2 - 5W$

31.) If the area of a rectangle can be represented by $(x^2 + 4x - 60)$, which two expressions could represent its length and its width?

$(x - 6)(x + 10)$
$x^2 + 10x - 6x - 60$
$x^2 + 4x - 60$

- ☒ $(x - 6)$
- ☐ $(x - 5)$
- ☐ $(x - 12)$
- ☐ $(x + 6)$
- ☐ $(x - 10)$
- ☒ $(x + 10)$