

EXAM REVIEW GRADE 9

Unit 5 – Polynomials

Name: Answer Key Class: _____

1. Simplify: $\underline{2x^2} - \underline{2x} + \underline{5x^2} - \underline{4x} - \underline{3x^2} + \underline{2x} = 4x^2 - 4x$

2. What is the opposite of $4x^2 - 3x + 2$? $-4x^2 + 3x - 2$

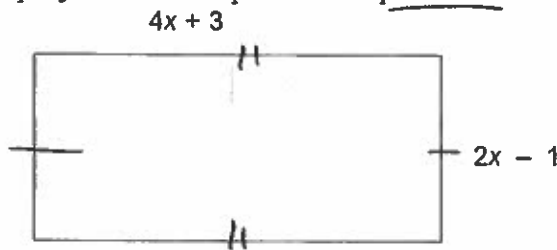
3. Write a polynomial with a coefficient of 3, degree 2 and a constant term of 7.

$3x^2 + 7$

4. If $x = 3$, what is the value of $x^2 - 2x + 3$?

$3^2 - 2(3) + 3 = 9 - 6 + 3 = 6$

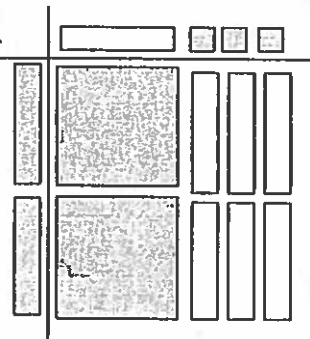
5. Write a polynomial to represent the perimeter of this rectangle.



$$\begin{array}{r} 4x + 3 \\ 4x + 3 \\ 2x - 1 \\ + 2x - 1 \\ \hline 12x + 4 \end{array}$$

6. Which multiplication sentence is modeled by the algebra tiles shown? *Shaded neg.*

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



7. Perform the operations indicated and simplify:

a. $(\underline{2x^2} - \underline{5xy} + \underline{3y^2}) + (\underline{7xy} - \underline{5y^2} + \underline{4x^2})$

$6x^2 + 2xy - 2y^2$

b. $(-4x^2 + 6x - 3) - (2x^2 - x + 5)$

$-4x^2 + 6x - 3 - 2x^2 + x - 5$
 $-6x^2 + 7x - 8$

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

$-6x^2 + 12xy - 15y^2$

d. $\frac{30x^2 - 18xy}{-6x} = \frac{30x^2}{-6x} - \frac{18xy}{-6x}$

$= -5x + 3y$

EXAM REVIEW GRADE 9
Unit 5 – Polynomials

Name: _____ Class: _____

e. $2x(x-3) - 4(x+3)$
 $2x^2 - 6x - 4x - 12 = 2x^2 - 10x - 12$

8. A student subtracted $(2x^2 + 5x - 3) - (x^2 - 2x + 4)$ like this:

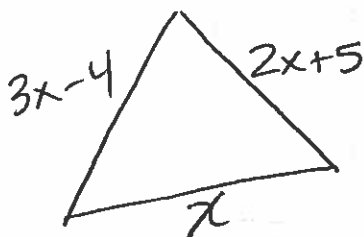
$$\begin{aligned} &(2x^2 + 5x - 3) - (x^2 - 2x + 4) \\ &= 2x^2 + 5x - 3 - x^2 - 2x + 4 \\ &= 2x^2 - x^2 + 5x - 2x - 3 + 4 \\ &= x^2 + 3x + 1 \end{aligned}$$

← didn't add the opposite for every term in the second polynomial

Identify the errors and correct them.

$$\begin{aligned} &\underline{2x^2} + \underline{5x} - 3 + \underline{-x^2} + \underline{2x} - 4 \\ &= x^2 + 7x - 7 \end{aligned}$$

9. Two sides of a triangle are $3x - 4$ and $2x + 5$. If the perimeter is $9x + 6$, what is the length of the third side of the triangle?

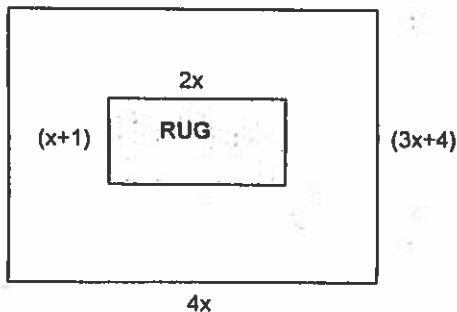


$$\begin{array}{r} 3x-4 \\ 2x+5 \\ \hline 5x+1 \end{array}$$

$$\begin{aligned} &9x+6 - (5x+1) \\ &9x+6 - 5x - 1 \\ &4x+5 \leftarrow \text{third side} \end{aligned}$$

$P = 9x + 6$.

10. A rectangular rug with dimensions $2x$ by $(x + 1)$ is placed in a rectangular room with dimensions $(4x)$ by $(3x + 4)$. What area of the floor is *left uncovered*?



$$\begin{aligned} \text{Area Big} &= 4x(3x+4) \\ &= 12x^2 + 16x. \end{aligned}$$

$$\begin{aligned} \text{Area Rug} &= 2x(x+1) \\ &= 2x^2 + 2x \end{aligned}$$

$$\begin{aligned} \text{Area left uncovered} &= \text{Area Big} - \text{Area Rug} \\ &= 12x^2 + 16x - (2x^2 + 2x) \\ &= 12x^2 + 16x - 2x^2 - 2x \\ &= 10x^2 + 14x \end{aligned}$$