

# MATH A UNIT 3 REVIEW

## PART 1. SHOW YOUR WORK. CIRCLE YOUR ANSWERS.

1. Evaluate the polynomials as indicated.

$$\begin{array}{llll} -2x^2 - 3x + 2 \text{ for:} & \text{a)} & x = -4 & \text{b)} & x = -\frac{1}{2} & \text{c)} & x = -\frac{1}{4} \\ -4x^2 + x - \frac{1}{2} \text{ for:} & \text{d)} & x = 2 & \text{e)} & x = -\frac{1}{4} & \text{f)} & x = -\frac{1}{2} \end{array}$$

2. Perform the indicated operations.

$$\begin{array}{ll} \text{a)} & (-x^2 + x - 9) - (-x^2 - x + 2) \\ \text{b)} & -(-a^3 - a^2 + 10) - (-a^2 - a - 3) + (3a^3 - 4a - 1) \\ \text{c)} & \left(-m^2 - m - \frac{1}{2}\right) - (3 - m^2 - m) - \left(3m^2 - \frac{2}{3}m - 1\right) \end{array}$$

3. Find each product.

$$\begin{array}{lll} \text{a)} & (x-3)(2x-1) & \text{b)} & (3x-1)(x-3) & \text{c)} & (2p-5)(3p+2) \\ \text{d)} & (2x-3)^2 & \text{e)} & (2h^2+h-3)(h+1) & \text{f)} & (4v^2-3v+1)(v-2) \\ \text{g)} & (x-7y)^2 & \text{h)} & (2x+y)(2x-y) & \text{i)} & (4x-5)(4x+5) \end{array}$$

## PART 2. SHOW YOUR WORK. CIRCLE YOUR ANSWERS.

1. a) A rectangular sign has a width of  $x - 5$  feet and a length of  $2x - 7$  feet. Write a polynomial expression that represents the area of the sign, and simplify the expression. Use it to find the area of the sign if  $x = 12$ .

b) A triangle has a height of  $4 + x$  inches and a base of  $4x$  inches. Write and simplify a polynomial expression that represents the area of the triangle. Find the area of the triangle if  $x = 4$ .

c) A triangle has a height of  $3y$  inches and a base of  $2y + 6$  inches. Write and simplify a polynomial expression that represents the area of the triangle. Find the area of the triangle if  $y = 6$ .

d) A square has a side of length  $11 - x$  meters. Write and simplify a polynomial expression that represents the area of the square. Find the area of the square if  $x = 3$ .

Find each quotient.

a)  $\frac{-8x^2y^5}{-2xy^3}$

b)  $\frac{18a^3b^7}{-3a^4b}$

c)  $\frac{-64x^{-3}y^2}{16x^{-1}y^{-2}}$

d)  $\frac{-4p^{-2}v^{-2}}{24p^{-2}v^2}$

e)  $\frac{-20x^4+4x^3-8x^2}{-4x^2}$

f)  $\frac{18a^3b^2-6a^2b+9ab^2}{-6ab^2}$

g)  $\frac{x^3-6x^2+9x-5}{x-4}$

h)  $\frac{a^3-2a^2+3}{a-1}$

i)  $\frac{2x^3-7x^2-x-6}{2x-1}$

**PART 3. SHOW YOUR WORK. CIRCLE YOUR ANSWERS.**

1. Simplify each expression.

a)  $(2a^3b)(3a^4b)^2$

b)  $(-3x^2y^{-2})^2(3xy^{-1})^2$

c)  $(-x^{-1}y^3)^{-1}(4x^2y)^2$

d)  $\left(\frac{-4x}{y^5}\right)^3$

e)  $\left(\frac{x^5}{-3y^2}\right)^4$

f)  $\left(\frac{-2y}{3x}\right)^2$

g)  $(3x^{-2}y)^4$

h)  $(-2x^{-2})^{-3}$

i)  $(4z^2)^{-3}$

j)  $(6-10)^2$

k)  $(-2+9)^2$

l)  $-3^4$

m)  $-3^{-4}$

n)  $3^{-4}$

o)  $\left(\frac{1}{3}\right)^{-4}$

2. Convert each number in scientific notation to a number in standard notation.

a)  $4.32 \times 10^{-3}$

b)  $2.19 \times 10^7$

c)  $3.75 \times 10^{-2}$

d)  $4.1 \times 10^{-1}$

**PART 4. SHOW YOUR WORK. CIRCLE YOUR ANSWERS.**

1. Perform each computation without using a calculator. Write your answer in scientific notation.

a)  $\frac{(5000)(400)}{(20000)}$

b)  $\frac{(80000000)(0.0002)}{(0.004)}$

c)  $\frac{(0.0009)(0.006)}{(0.00000002)}$

d)  $\frac{(4.0 \times 10^2)(3.0 \times 10^{-4})}{(2.0 \times 10^{-5})}$

e)  $\frac{(8.0 \times 10^{-3})(8.0 \times 10^{-3})}{(4.0 \times 10^{-6})}$

f)  $\frac{(6.0 \times 10^4)(5.0 \times 10^{-1})}{(0.003)}$

2. Do the following problems from the textbook.

Page 293:

a) # 99

b) # 100

c) # 101