# Polynomials Practice Test

Math 9 **Polynomials Practice Test** Name: _____

/32

**Multiple Choice:** Identify the choice that best completes the statement or answers the question. [10]

**1.** What is the opposite of the expression $a^3 - 2a^2 - 8 + 5a$?

$-a^3 + 2a^2 + 8 - 5a$

a) $-a^3 + 2a^2 + 8 + 5a$ b) $a^3 + 2a^2 + 5a - 8$ c) $-a^3 + 2a^2 - 5a + 8$ d) $-a^3 + 2a^2 - 8 - 5a$

**2.** What is the value of the constant in the expression $a^3 - 2a^2 - 8 + 5a$?

↳ term without a variable

a) –8 b) 3 c) 5 d) 8

**3.** What is the coefficient of the term $-7b^3c^2$?

a) –7 b) 2 c) 3 d) 7

**4.** What is the degree of the term $2u^3v$?

add exponents to determine the degree

a) 1 b) 2 c) 3 d) 4

**5.** What is the degree of the polynomial $3x^3 - 5x^2 + x$?

look for term with highest degree

a) 1 b) 3 c) 5 d) 6

**6.** $2k^2 - 3k + 1$ is a

a) term b) monomial c) binomial d) trinomial

**7.** Which expression is equivalent to $3x - 5 + 2x + 3$?

$3x + 2x = 5x$
$-5 + 3 = -2$

a) $3x$ b) $5x - 2$ c) $x - 2$ d) $5x + 2$

**8.** Which of the following terms is equivalent to $(6a^5)(3a^2)$?

multiply coefficients
add exponents

a) $9a^7$ b) $9a^{10}$ c) $18a^7$ d) $18a^{10}$

**9.** Which expression is equivalent to $-2m(3m - 1)$?

$-6m^2 + 2m$

a) $-6m^2 + 2m$ b) $-6m^2 - 1$ c) $-6m^2 - 2m$ d) $6m^2 - 2m$

**10.** Which expression is equivalent to $\frac{4x^5+6x^3-3x}{-2x}$?

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

a) $-2x^4 + 3x^2 - \frac{3}{2}$ b) $-2x^4 - 3x^2 + \frac{3}{2}$ c) $2x^5 - 3x^3 + \frac{3}{2}x$ d) $-2x^4 + 6x^2 - 3x$

**12.** Simplify each expression. (Collect like terms.) [4]

a) $3x - 1 - 7x + 2$

$= 3x - 7x - 1 + 2$

$= -4x + 1$

b) $4x^2 - 3xy - y^2 + xy + x^2$

$= 4x^2 + x^2 - 3xy + xy - y^2$

$= 5x^2 - 2xy - y^2$

c) $(7x - 4y + 1) + (2y - 5x - 6)$

$= 7x - 4y + 1 + 2y - 5x - 6$

$= 2x - 2y - 5$

d) $(7x - 4y + 1) - (2y - 5x - 6)$

$= 7x - 4y + 1 - 2y + 5x + 6$

$= 12x - 6y + 7$

**13.** Determine each product. [4]

a) $(2a)(-4b)$ $= -8ab$

b) $4x^2(5x - 3)$

$= 20x^3 - 12x^2$

c) $-11(y^2 - 2y + 3)$

$= -11y^2 + 22y - 33$

d) $(6 + 2t^2 - t)(5t^3)$

$= 30t^3 + 10t^5 - 5t^4$

**14.** Determine each quotient. [4]

a) $\frac{10xy^2}{2y}$ $= 5xy$

$= \frac{\overset{5}{\cancel{10}} \cdot x \cdot \cancel{y} \cdot y}{\underset{1}{\cancel{2}} \cdot \cancel{y}}$

b) $\frac{12mn^2 - 18m}{3m}$

$= \frac{\overset{4}{\cancel{12}}mn^2}{\underset{1}{\cancel{3}}\cancel{m}} - \frac{\overset{6}{\cancel{18}}\cancel{m}}{\underset{1}{\cancel{3}}\cancel{m}}$

$= 4n^2 - 6$

c) $\frac{11b^2c + 5bc^2 + 4bc}{-bc}$ $= \frac{11b^{\cancel{2}}\cancel{c}}{-\cancel{b}\cancel{c}} + \frac{5\cancel{b}c^{\cancel{2}}}{-\cancel{b}\cancel{c}} + \frac{4\cancel{b}\cancel{c}}{-\cancel{b}\cancel{c}}$

$= -11b - 5c - 4$

d) $\frac{30x^3 - 24x + 5}{6}$

$= \frac{30x^3}{6} - \frac{24x}{6} + \frac{5}{6}$

$= 5x^3 - 4x + \frac{5}{6}$

Math 9 **Polynomials Practice Test** Name: _____

**15.** Are $2a^2b$ and $3ab^2$ like terms? Why or why not? [2]

No, they are not like terms since "a" is squared in the first term but not the second term.

**16.** Determine the missing factor of $\square(7x - 5) = -14x^2 + 10x$. [1]

$-2x \cdot 7x = -14x^2$

check: $-2x \cdot (-5) = 10x$ ✓

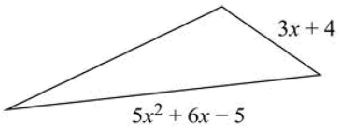
The missing factor is $-2x$.

**17.** Expand and simplify $2y^2(y + 7) - 3y(4y - y^3)$. [2] or $2y^3 + 14y^2 - (12y^2 - 3y^4)$

$= 2y^3 + 14y^2 - 12y^2 + 3y^4$

$= 2y^3 + 2y^2 + 3y^4$

**18.** The perimeter of the triangle shown is $P = 14x^2 - 8x + 11$. Using the sides shown, determine the length of the third side. [3]




$14x^2 - 8x + 11 - (3x + 4) - (5x^2 + 6x - 5)$

$= 14x^2 - 8x + 11 - 3x - 4 - 5x^2 - 6x + 5$

$= 9x^2 - 17x + 12$

The third side is $9x^2 - 17x + 12$.

**19.** The area of a triangle is represented by the expression $6x^3 - 12x^2 + 3x$. What is the height of the triangle if its base is $3x$? [2]

$A = \frac{b \cdot h}{2}$

$2A = b \cdot h$

$\frac{2A}{b} = h$

① Divide area by base

$\frac{6x^3 - 12x^2 + 3x}{3x} = 2x^2 - 4x + 1$

② Multiply by 2.

$2(2x^2 - 4x + 1) = 4x^2 - 8x + 2$

The height is $4x^2 - 8x + 2$.