

Practice Test

March-23-15
9:02 AM

Math 10 Polynomials practice test

Name: SOLUTIONS

1. Identify the following as a i) monomial, ii) binomial or iii) trinomial.

$3x+2y$ Binomial

$5x + 4x^2 + 3$ Trinomial

2. Why is $3x^2 + 2x^{-1}$ NOT a binomial?

Exponents on variables must be whole numbers (eg. 1, 2, 3, ...)

3. State the constant(s) and coefficient(s) in each polynomial.

	Constant(s)	Coefficient(s)
$3x^2 + 4$	<u>4</u>	<u>3</u>
$4x^2 + 2y$	<u>0</u>	<u>4, 2</u>

Simplify the following polynomials:

4) $(7x + 11) - (3x - 2)$
 $= 7x + 11 - 3x + 2$
 $= \boxed{4x + 13}$

5) $(x^2 - 4) + (-x + 2) - (-3 - x)$
 $= x^2 - 4 - x + 2 + 3 + x$
 $= \boxed{x^2 + 1}$

Simplify. Then find the value of the polynomial when $x=3$ and $y = -2$.

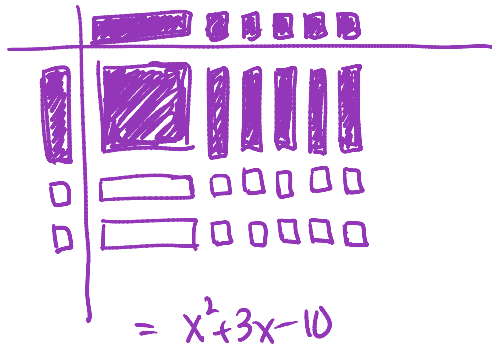
6) $4 - 2(3 - 4x + 5y)$
 $= 4 - 6 + 8x - 10y$
 $= \boxed{8x - 10y - 2}$

when $x=3, y=-2$:
 $= 8(3) - 10(-2) - 2$
 $= 24 + 20 - 2$
 $= \boxed{42}$

Show the following expansion using both algebra tiles and a box model

7) $(x-2)(x+5)$

Tiles:



Box Model:

	x	-2
x	x^2	$-2x$
5	$+5x$	-10

$= x^2 + 3x - 10$

Expand:

8) $(2y-3)(4y-5)$

$$= 8y^2 - 10y - 12y + 15$$

$$= \boxed{8y^2 - 22y + 15}$$

9) $(x+2)^2 = (x+2)(x+2)$

$$= x^2 + 2x + 2x + 4$$

$$= \boxed{x^2 + 4x + 4}$$

Factor each polynomial completely:

10) $10y + 5y^3$

GCF = $5y$

$$= \boxed{5y(2 + y^2)}$$

11) $3abc + 6ab^2 - 9ac^2$

GCF = $3a$

$$= \boxed{3a(bc + 2b^2 - 3c^2)}$$

Factor the following into two binomials: (you may need to simplify some before factoring)

12) $x^2 + 12x + 35$

$$= x^2 + 7x + 5x + 35$$

$$= x(x+7) + 5(x+7)$$

$$= \boxed{(x+7)(x+5)}$$

13) $x^2 - 8x + 15$

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

$$= x(x-5) - 3(x-5)$$

$$= \boxed{(x-5)(x-3)}$$

14) $x^2 - 3x - 18$

$$= x^2 - 6x + 3x - 18$$

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

$$= \boxed{(x-6)(x+3)}$$

15) $5a^2 - 55a + 50$

GCF = 5

$$= 5(a^2 - 11a + 10)$$

$$= 5(a^2 - 10a - 1a + 10)$$

$$= 5(a(a-10) - 1(a-10))$$

$$= \boxed{5(a-10)(a-1)}$$

10) ~~$-5-5a+9a+a^2-7$~~
 $-5-5a+9a+a^2-7$
 $= a^2+4a-12$
 $= a^2+ba-2a-12$
 $= a(a+b)-2(a+b)$
 $= \boxed{(a+b)(a-2)}$

Group like terms first!

11) ~~$4x^2-100y^2$~~
 $4x^2-100y^2$
 $= 4(x^2-25y^2)$
 $= 4(x+5y)(x-5y)$

GCF = 4
 Difference of squares!

18) What are ALL the possible integer values of b?

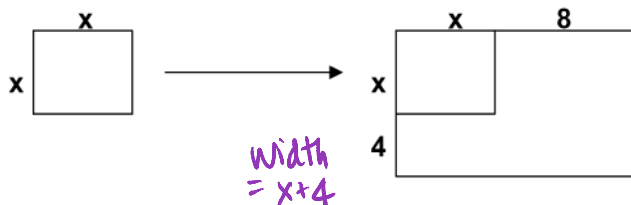
$x^2 + (b)x + 12$

Add to b
 Multiply to 12
 3 4 or -3 -4
 2 6 -2 -6
 1 12 -1 -12

b could be 7, 8, 13, -7, -8, -13

BONUS

20) A square of side length x has 4cm added to its length and 8cm added to its width. The resulting total area is 117cm^2 . What was the original side length of the square (x)?



width = $x+4$

Length = $x+8$

$(x+4)(x+8) = 117$

$x^2+8x+4x+32 = 117$

$x^2+12x-85 = 0$

$x^2+17x-5x-85 = 0$

$x(x+17)-5(x+17) = 0$

$(x+17)(x-5) = 0$

$x = 5$