

Grade 9  
Polynomial Review

*Answer 1*

1. Complete the chart.

POLYNOMIAL	DEGREE	#OF TERMS	MONOMIAL BINOMIAL TRINOMIAL	VARIABLES	COEFFICIENTS	CONSTANT
$-r^2$	2	1	Monomial	r	-1	none
-2	0	1	Monomial	none	none	-2
$7b^2 + 8b^3$	3	2	Binomial	b	7, 8	none
$9v^5 - 9v^6 - v$	6	3	Trinomial	v	9, -9, -1	none
$3p - 3$	1	2	Binomial	p	3	-3
$6x^2 + 9x - 7$	2	3	Trinomial	x	6, 9	-7
h	1	1	Monomial	h	1	none

2. Circle the polynomials.

$\sqrt{56}$

$4x^2$

$\sqrt{x}$

14

$6x^{0.8}$

$\frac{4x}{11}$

$\frac{15}{x}$

3. Simplify each expression.

$9v^2 - 9v^0 - v$	6	3	Trinomial	v	9, -9, -1	none
$3p - 3$	1	2	Binomial	p	3	-3
$6x^2 + 9x - 7$	2	3	Trinomial	x	6, 9	-7
$h$	1	1	Monomial	h	1	none

2. Circle the polynomials.

$\sqrt{56}$     $4x^2$     $\sqrt{x}$     $14$     $6x^{0.8}$     $\frac{4x}{11}$     $\frac{15}{x}$

3. Simplify each expression.

a)  $(16n^2 - n^3 - 3) - (6n^2 + 6n^4 - 2n^3 + 5)$

$$\begin{aligned} & \underline{16n^2} - \underline{n^3} - \underline{3} - \underline{6n^2} - \underline{6n^4} + \underline{2n^3} - \underline{5} \\ & 10n^2 + 1n^3 - 8 - 6n^4 \\ & \text{OR} \\ & -6n^4 + 1n^3 + 10n^2 - 8 \end{aligned}$$

b)  $(7a^2 - 6a^3 + 7) + (1 - 6a^3 - 10a)$

$$\begin{aligned} & \underline{7a^2} - \underline{6a^3} + \underline{7} + \underline{1} - \underline{6a^3} - \underline{10a} \\ & 7a^2 - 12a^3 + 8 - 10a \\ & \text{OR} \\ & -12a^3 + 7a^2 - 10a + 8 \end{aligned}$$

c)  $(8x^3y + 5xy - 2x^4y^2) + (2x^3y + 7xy + 3x^4y^2)$

$$\begin{aligned} & \underline{8x^3y} + \underline{5xy} - \underline{2x^4y^2} + \underline{2x^3y} + \underline{7xy} + \underline{3x^4y^2} \\ & 10x^3y + 12xy + 1x^4y^2 \end{aligned}$$

d)  $(7y - 2x^2y + 2x^2y^2) - (4y + 8x^2y^2 - 4x^2y)$

$$\begin{aligned} & \underline{7y} - \underline{2x^2y} + \underline{2x^2y^2} - \underline{4y} - \underline{8x^2y^2} \\ & 3y + 2x^2y - 6x^2y^2 \end{aligned}$$

4. Find the product.

a)  $8p(2p + 6)$

b)  $4b(7b - 1)$

c)  $2(9x - 3)$

d)  $4(-2)$

$$\frac{16n^2 - n^3 - 3}{10n^2 + 1n^3 - 8 - 6n^4}$$

OR

$$\frac{-6n^2 - 6n^4 + 2n^3 - 5}{-6n^4 + 1n^3 + 10n^2 - 8}$$

c)  $(8x^3y + 5xy - 2x^4y^2) + (2x^3y + 7xy + 3x^4y^2)$

$$\frac{7a^2 - 6a^3 + 7 + 1 - 6a^3 - 10a}{7a^2 - 12a^3 + 8 - 10a}$$

OR

$$\frac{-12a^3 + 7a^2 - 10a + 8}{(7y - 2x^2y + 2x^2y^2) - (4y + 8x^2y^2 - 4x^2)}$$

d)  $(7y - 2x^2y + 2x^2y^2) - (4y + 8x^2y^2 - 4x^2)$

$$8x^3y + 5xy - 2x^4y^2 + 2x^3y + 7xy + 3x^4y^2$$

$$10x^3y + 12xy + 1x^4y^2$$

$$7y - 2x^2y + 2x^2y^2 - 4y - 8x^2y^2$$

$$3y + 2x^2y - 6x^2y^2$$

4. Find the product.

a)  $8p(2p + 6)$

$$16p^2 + 48p$$

b)  $4k(7k - 1)$

$$28k^2 - 4k$$

c)  $2(8x - 3)$

$$16x - 6$$

d)  $4(n - 2)$

$$4n - 8$$

5. Divide.

a)  $\frac{30v^2 + 90v^2 + 50v}{10v}$

$$3v^2 + 9v + 5$$

b)  $\frac{40x^8 + 16x^7 - 32x^6}{-8x^2}$

$$-5x^6 - 2x^5 + 4x^4$$

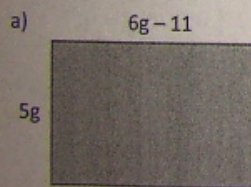
c)  $\frac{-54v^4 + 66v^3 + 36v^2}{6v^2}$

$-9v^2 + 11v + 6$

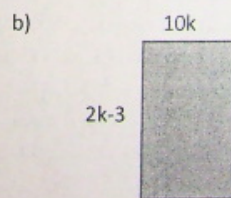
d)  $\frac{-48x^5 - 60x^4 + 156x^3}{-12x^3}$

$4x^2 + 5x - 13$

6. Determine the area.  $A = L \times W$



$(5g)(6g - 11)$   
 $30g^2 - 55g$



$10k(2k - 3)$   
 $20k^2 - 30k$

7. Determine the missing side, given the perimeter.

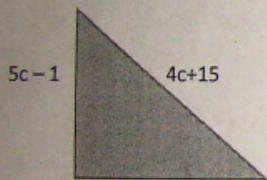


$$(5g)(6g-11)$$

$$30g^2 - 55g$$

7. Determine the missing side, given the perimeter.

a)  $P = 12c + 25$



$$(5c-1) + (4c+15)$$

$$5c-1 + 4c+15$$

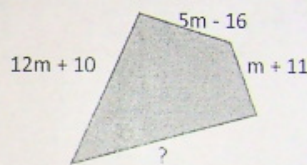
$$9c+14$$

$$(12c+25) - (9c+14)$$

$$12c+25 - 9c - 14$$

$$3c + 11$$

b)  $P = 21m - 50$



$$(12m+10) + (5m-16) + (m+11)$$

$$\underline{12m+10} + \underline{5m-16} + \underline{m+11}$$

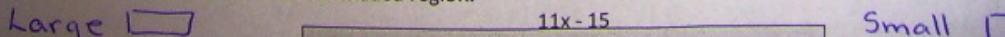
$$18m+5$$

$$(21m-50) - (18m+5)$$

$$21m-50 - 18m-5$$

$$3m-55$$

8. Determine the area of the shaded region.



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$$(5c-1) + (4c+15)$$

$$5c-1 + 4c+15$$

$$9c + 14$$


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$$(12c+25) - (9c+14)$$

$$12c+25 - 9c - 14$$

$$3c + 11$$

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$$(12m+10) + (5m-16) + (m+11)$$

$$\underline{12m+10} + \underline{5m-16} + \underline{m+11}$$

$$18m + 5$$


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$$(21m-50) - (18m+5)$$

$$21m-50 - 18m-5$$

$$3m - 55$$

8. Determine the area of the shaded region.

Large □

 $(5x)(11x-15)$ 
 $55x^2 - 75x$

Small □

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

Large - small

 $(55x^2 - 75x) - (10x^2 - 8x)$ 
 $55x^2 - 75x - 10x^2 + 8x$

45x<sup>2</sup> - 67x