

## Welcome Back to MYP Math 9!

	Assignment Effort Grade (Circle One)	Comments (What was interesting or challenging?)
<b>Monday</b> Date: <u>3/12</u> Topic: <u>9ABCD- Special cases of factoring</u>	0 1 2	
<b>Tuesday</b> Date: <u>3/13</u> Topic: <u>18ABC: Solving Polynomials</u>	0 1 2	
<b>Wednesday</b> Date: <u>3/14</u> Topic: <u>Solving - Real and Nonreal Solutions</u>	0 1 2	
<b>Thursday</b> Date: <u>3/15</u> Topic: <u>Graphs of Polynomials</u>	0 1 2	
<b>Friday</b> Date: _____ Topic: _____	0 1 2	

Warm-up:

Expand and simplify.

$$\sqrt{-1} = i$$

$$(2i + 3) - 2i(-3i - 1)$$

$$2i + 3 + 6i^2 + 2i$$

$$4i + 3 + 6(-1) = 4i + 3 - 6$$

$$4i - 3$$



Warm-up:

Expand and simplify.

$$\sqrt{-1} = i$$

$$(2i + 3) - 2i(-3i - 1)$$

$$2i + 3 + 6i^2 + 2i$$

$$4i + 3 + 6(-1)$$

$$4i + 3 - 6 = \boxed{4i - 3}$$

## Complex Numbers -

include real numbers ( $a$  and  $b$ ), as well as square root of a negative number.

$$a + bi$$

imaginary number

$$\sqrt{-1} = i \quad -1 = i^2$$

Topics covered in Unit 6:

- 1) Find degree of polynomial (3/6)  
-Write equation (3/6 & 3/14)
- 2) Expand polynomials (3/7)
- 3) Factor polynomials (3/8 & 3/9)
- 4) Solve polynomials/quads  
*Real & Nonreal* (3/12 & 3/13)

Use previous handouts and sections 4B, 9A-9E, 18ABC of text.

## Quiz Rubric - Unit 6:

7	<ul style="list-style-type: none"><li>• Select appropriate mathematics when solving <b>challenging problems in both familiar and unfamiliar situations.</b></li><li>• Apply the selected mathematics successfully when solving these problems.</li></ul>
8	<ul style="list-style-type: none"><li>• Generally solve these problems correctly.</li></ul>

- Problems are solved with **no error** and sufficient work.
- Find minimum degree of a polynomial from a table.
- Write polynomials from graphs with coefficient.
- Expand polynomial expressions.
- Factor polynomial expressions, completely.
- Solve for polynomial solutions – real & nonreal values.

- Factoring
- Taking square roots

# Do: Unit 6 Quiz 1 Review WS

1. Finite Differences
2. Graphing
3. Expanding
4. Factoring
5. Solve



[Solutions posted on weebly!](#)

Done?

Review Sections 4B, 9A-E, & 18ABC



1. Use the finite differences method to find the degree of the polynomials.

a)

-3	-2.5	-2	-1.5	-1	-0.5	0
-0.5	-3	-4.5	-5	-4.5	-3	-0.5

1. Use the finite differences method to find the degree of the polynomials.

b)

10	11	12	13	14	15
1018	1349	1746	2215	2762	3393

# SOLUTIONS

1. Use the finite differences method to find the degree of the polynomials.

a)

-3	-2.5	-2	-1.5	-1	-0.5	0
-0.5	-3	-4.5	-5	-4.5	-3	-0.5

$$\begin{array}{cccccc}
 \underbrace{\quad} & \underbrace{\quad} & \underbrace{\quad} & \underbrace{\quad} & \underbrace{\quad} & \underbrace{\quad} \\
 -2.5 & -1.5 & -0.5 & +0.5 & +1.5 & +2.5 \\
 +1 & +1 & +1 & +1 & +1 & +1
 \end{array}$$

DEGREE 2  
(QUADRATIC)

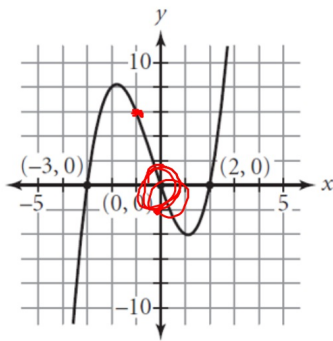
b)

10	11	12	13	14	15
1018	1349	1746	2215	2762	3393

$$\begin{array}{cccccc}
 \underbrace{\quad} & \underbrace{\quad} & \underbrace{\quad} & \underbrace{\quad} & \underbrace{\quad} & \underbrace{\quad} \\
 +331 & +397 & +469 & +547 & +6155 & \\
 \underbrace{\quad} & \underbrace{\quad} & \underbrace{\quad} & \underbrace{\quad} & \underbrace{\quad} & \\
 +60 & +72 & +78 & +84 & & \\
 \underbrace{\quad} & \underbrace{\quad} & \underbrace{\quad} & \underbrace{\quad} & & \\
 +6 & +6 & +6 & & & 
 \end{array}$$

DEGREE 3

2. Write the equation for the graph below.

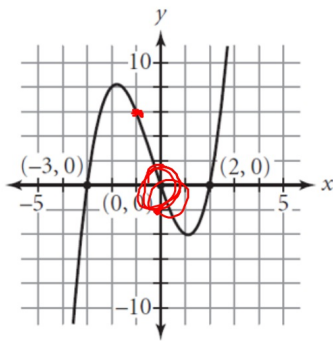


$-3, 0, 2$

$$y = a(x - -3)(x - 0)(x - 2)$$

$(-1, 6)$

2. Write the equation for the graph below.



$$(-1, 6)$$

$$-3, 0, 2$$

$$y = a(x - -3)(x - 0)(x - 2)$$

$$6 = a(-1 + 3)(-1)(-1 - 2)$$

$$6 = a(2)(-1)(-3)$$

$$6 = a(6)$$

$$a = 1$$

$$y = x(x + 3)(x - 2)$$

**SOLUTIONS**

3. Expand.

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

b)  $x(x+2) - 3(x-1)$

3. Expand.

c)  $(x + 2)^2$

d)  $(2x + 5)(x^2 + 2x + 4)$

## SOLUTIONS

3. Expand

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

$$\boxed{-6x^2 - 2x}$$

c)  $(x+2)^2$

$$\begin{array}{c} (x+2)(x+2) \\ \boxed{x^2 + 4x + 4} \end{array}$$

$$s = a(l-1)(l-1) \quad (a = \frac{1}{2})$$

$$3 = 6a$$

b)  $x(x+2) - 3(x-1)$

$$x^2 + 2x - 3x + 3$$

$$\boxed{x^2 - x + 3}$$

d)  $(2x+5)(x^2+2x+4)$

$$2x^3 + 4x^2 + 8x + 5x^2 + 10x + 20$$

$$\boxed{2x^3 + 9x^2 + 18x + 20}$$



4. Factor completely.

a)  $x(x + 2) + (x + 5)(x + 2)$

4. Factor completely.

b)  $6x^2 + 3x$

4. Factor completely.

c)  $x^2 - 19x + 48$

d)  $x^2 - 7x - 60$

4. Factor completely.

e) Challenge!  $36 - 49x^2$

## SOLUTIONS

4. Factor completely.

a)  $x(x+2) + (x+5)(x+2)$

$(x+2)[x + (x+5)]$

$(x+2)(2x+5)$

← WHAT DO THE TERMS HAVE IN COMMON?

b)  $6x^2 + 3x$

$3x(2x+1)$

c)  $x^2 - 19x + 48$

$(x-16)(x-3)$

~~$\begin{array}{c} 48 \\ -16 \quad -3 \\ -19 \end{array}$~~

d)  $x^2 - 7x - 60$

$(x+5)(x-12)$

~~$\begin{array}{c} -60 \\ 5 \quad -12 \\ -7 \end{array}$~~

e) Challenge!  $36 - 49x^2$

$(6-7x)(6+7x)$

5. Solve the quadratic equations.

a)  $1 - 3x^2 = 10$

b)  $x^2 + 20 = 16$

$$\sqrt{x^2 - 4}$$

$$x = \pm \sqrt{4} \sqrt{-1}$$

$$x = \pm 2i$$

5. Solve the quadratic equations.

c)  $(x + 3)^2 = -1$

d)  $5(x + 2)(2x - 1) = 0$

5. Solve the quadratic equations.

e)  $x(x-3)(x+2) = 0$

f)  $-2x^2 - 8x + 42 = 0$



# SOLUTIONS

5. Solve the quadratic equations.

a)  $1 - 3x^2 = 10$

$$\begin{aligned} -1 & \quad -1 & X &= \pm \sqrt{-3} \\ -3x^2 &= 9 & X &= \pm \sqrt{1} \sqrt{3} \\ -3 & -3 & X &= \pm i\sqrt{3} \\ X^2 &= -3 & & \end{aligned}$$

c)  $\sqrt{(x+3)^2} = \sqrt{-1}$

$$\begin{aligned} X+3 &= \pm i \\ X &= -3 \pm i \end{aligned}$$

e)  $x(x-3)(x+2) = 0$

$$\begin{aligned} X=0 & \quad X-3=0 & X+2=0 \\ X=3 & \quad X=-2 & \end{aligned}$$

b)  $x^2 + 20 = 16$

$$\begin{aligned} -20 & \quad -20 \\ \sqrt{X^2} &= \sqrt{-4} \\ X &= \pm 2i \end{aligned}$$

d)  $5(x+2)(2x-1) = 0$

$$\begin{aligned} (X+2)(2X-1) &= 0 \\ X+2=0 & \quad 2X-1=0 \\ X=-2 & \quad X=\frac{1}{2} \end{aligned}$$

f)  $-2x^2 - 8x + 42 = 0$

$$\begin{aligned} -2(x^2 + 4x - 21) & \\ -2(x+7)(x-3) &= 0 \\ (x+7)(x-3) &= 0 \\ X=-7 & \quad X=3 \end{aligned}$$

Exercises...

Study for Quiz 6.1