Algebra 1 **Unit 7 Test Review** Name Answer Key Hour ____

Directions
Complete each item in the space provided. Show all work for full credit. Explanations should be written in complete sentences.

1. Give an example of each type of polynomial listed below. (2 points each)

   a. quadratic binomial

   $x^2 + 1$

   b. 3 terms in standard form

   $x^2 + x + 1$

   c. trinomial

   $x^2 + x + 1$

   d. linear monomial

   x

2. Explain how to multiply $(x + 3)(x - 4)$, then find the product. (4 points)

   $(x+3)(x-4)$ Distribute x to $x-4$, then 3 to $x-4$

   $x^2 - 4x + 3x - 12$ Combine Like Terms

   $\boxed{x^2 - x - 12}$

3. Find each product. (3 points each)

   a. $4x(x - 5)$

   $\boxed{4x^2 - 20x}$

   b. $(a + 3)(a + 6)$

   $a^2 + 6a + 3a + 18$

   $\boxed{a^2 + 9a + 18}$

   c. $(3x - 2)(x - 6)$

   $3x^2 - 18x - 2x + 12$

   $\boxed{3x^2 - 20x + 12}$

-32
1 32
2 16
4 8

4. Factor each expression completely. (3 points each)

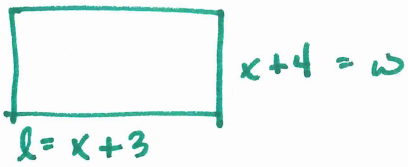
c. $12r^2 - 24r$ b. $n^2 + 10n + 24$ c. $8x^3z - 24x^2z^2 - 32xz$

$12r(r-2)$ $(n+6)(n+4)$ $8xz(x^2 - 3x - 32)$

$8xz(x^2 - 3x - 32)$

5. A rectangle has length $x + 4$ units and width $x + 3$ units.

a. Draw a picture of the rectangle. Label the length and width. (2 points)



b. Find the perimeter of the rectangle. (3 points)

$2(x+3) + 2(x+4) = 2x + 6 + 2x + 8 = \boxed{4x + 14}$

c. Find the area of the rectangle. (3 points)

$(x+3)(x+4)$

$x^2 + 4x + 3x + 12 = \boxed{x^2 + 7x + 12}$

6. Simplify each expression. Write your answers in standard form. (3 points each)

a. $(5x^3 - 10x^2 + 13) - (2x^3 + 4x^2 - 6)$

$5x^3 - 10x^2 + 13 - 2x^3 - 4x^2 + 6$

$\boxed{3x^3 - 14x^2 + 19}$

b. $(4x^3 + 7x - 6) + (x^2 + 3x)$

$4x^3 + 7x - 6 + x^2 + 3x$

$\boxed{4x^3 + x^2 + 10x - 6}$

7. Solve each equation. (5 points each)

a. $x^2 + x - 6 = 0$

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

$x-2=0$
$+2 \quad +2$
$x=2$

$x+3=0$
$-3 \quad -3$
$x=-3$

b. $x^2 - 9x + 20 = 0$

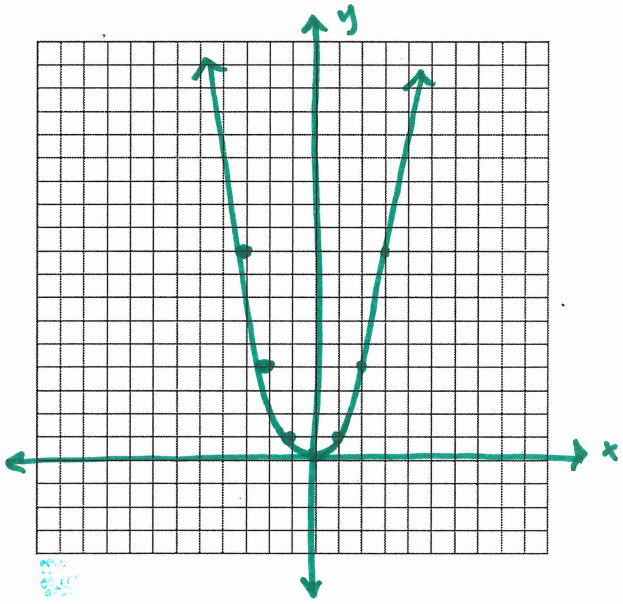
$(x-4)(x-5)=0$

$x-4=0$
$+4 \quad +4$
$x=4$

$x-5=0$
$+5 \quad +5$
$x=5$

8. Make a table from $x = -3$ to $x = 3$ for $y = x^2$. Graph the equation on the coordinate grid provided. (4 points)

x	y
-3	9
-2	4
-1	1
0	0
1	1
2	4
3	9

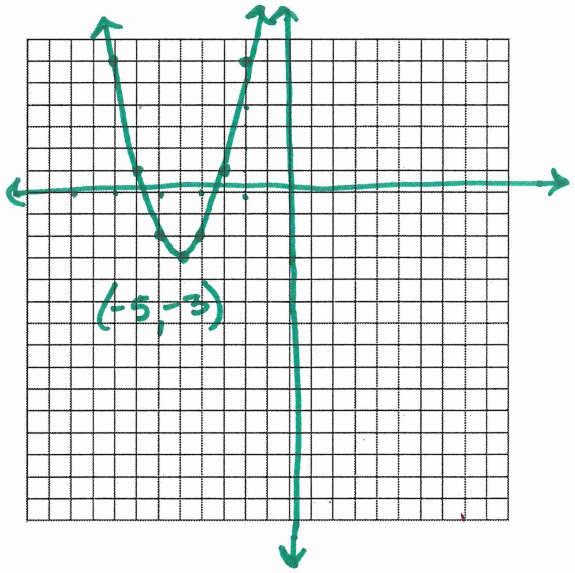


9. Graph $y = (x + 5)^2 - 3$ on the coordinate grid provided. (4 points)

State the vertex $(-5, -3)$
(1 point)

Write an equation for the axis of symmetry. $x = -5$
(1 point)

$y = (x+5)^2 - 3$



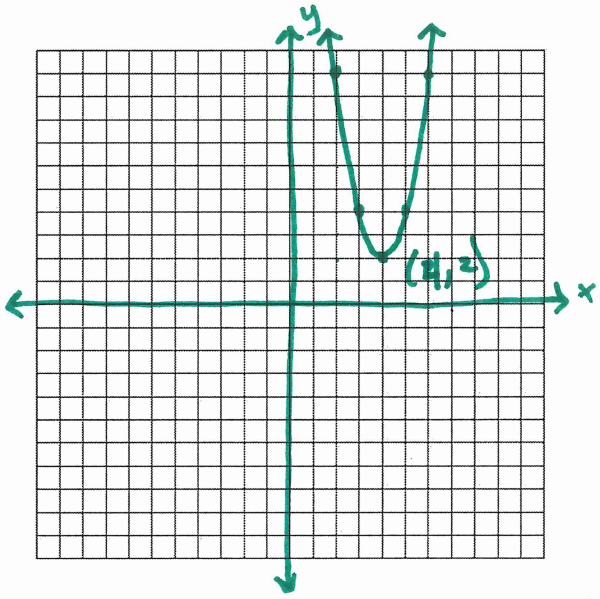
x	y
-6	-2
-5	-3
-4	-2
-3	1

x	y
-2	6
-1	13
0	22
1	
2	

10. Graph $y = 2(x - 4)^2 + 2$ on the coordinate grid provided.
(4 points)

State the vertex $(4, 2)$
(1 point)

Write an equation for the axis of symmetry. $x = 4$
(1 point)



x	y
0	34
1	20
2	10
3	4
4	2
5	4
6	10