Unit 1 Assignment – Polynomials

Knowledge	**72**	
Application	**23**	
Communication		

Directions: ***Complete all questions in the spaces provided. Questions are being marked for both correctness and the communication of mathematical processes. Be sure to show your work to receive full marks. If rounding is necessary, round to tenths. Be sure to include units where necessary. Marks are indicated for each question in parenthesis in the margin.***

PART A: Knowledge

1. **Expand and simplify each of the following.**

a) $2x\left(3x^2+x-5\right)=$

$=$

b) $(3x-4)(x+1)=$

$=$

(2, 3)

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

$=$

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

$=$

(3, 3)

e) $(x-4)(2x+3)-(2x-3)^2=$

$=$

f) $(2x-5)^2-(3x-2)^2=$

$=$

(4, 4)

2. Divide.

a) $\dfrac{125x^2+75x-25}{-25}=$

$=$

b) $\dfrac{27x^6-54x^4-45x^5}{9x^4}=$

$=$

(3, 3)

3. Factor each of the following using common factoring and/or factoring by grouping.

a) $15n^3-25n^2+6n-10=$

$=$

b) $-24x^5y^3-20x^6y^4+28x^4y^2=$

$=$

(3, 3)

c) $120xy^2+60x^2y^2+90x^3y^2=$

$=$

d) $12x^3+20x^2+9x+15=$

$=$

(3, 3)

4. Factor each of the following trinomials.

a) $a^2+11a+24=$

$=$

b) $x^2-13x+40=$

$=$

(2, 2)

c) $5x^2+26x-24=$

$=$

d) $10x^2-13x-30=$

$=$

(2, 3)

5. Factor each of these special cases by recognizing either a difference of squares or a perfect square trinomial that uses sum of squares.

a) $x^2 - 14x + 49 =$

$=$

b) $25x^2 - 169 =$

$=$

(2, 2)

c) $9p^2 + 30p + 25 =$

$=$

d) $-32x^2 + 50 =$

$=$

(2, 3)

6. Factor completely using the process necessary. ***(These questions are mixed and you must decide which process fits.)***

a) $r^2 - 4r - 21 =$

$=$

b) $100x^2 - 49 =$

$=$

(2, 2)

c) $36x^2 - 24x + 4 =$

$=$

d) $60x^2 + 30x - 180 =$

$=$

(2, 3)

e) $x^2 - x - 56 =$

$=$

f) $5x^2 + 6x =$

$=$

(2, 2)

g) $169x^2 - 225 =$

$=$

h) $7x^2 + 3x - 4 =$

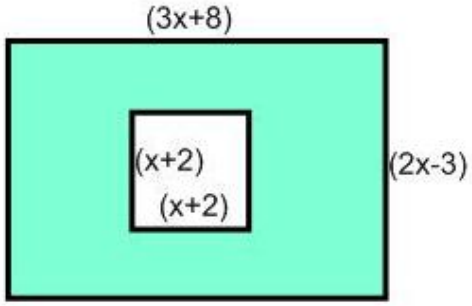
$=$

(2, 2)

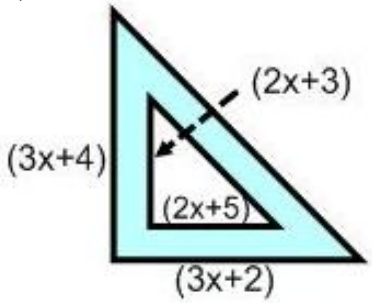
PART B: Application

1. **Write an expression for the area of the shaded region of each shape.**

a)



b)



(3, 3)

2. **Find expressions for the length and width of the rectangle given the area of the rectangle is** $A = 5x^2 - 29x + 20\ units^2$**.**

(2)

3. **The area of a square can be represented by** $A = 9x^2 - 42x + 49\ m^2$ **. If** $x = 15.0m$**, what is the length and width of this square?**

(3)

4. Factor each of the following.

a) $100-(a+b)^2=$

$=$

b) $x^2+8x+16-25y^2=$

$=$

(3, 3)

c) $25x^2-a^2-14a-49=$

$=$

d) $(a+b)^2-5(a+b)-14=$

$=$

(3, 3)