Pre-Calculus 11: Basic Skills Assignment #2

1. Compare the following.

   a) Multiply.

   $$2(x+5)$$
   $$=2x+10$$

   b) Factor.

   $$2x+10$$
   $$=2(x+5)$$

2. Use the solved examples in #1 to answer each part below.

   a) Multiply. *(Find the product.)*

   $$-5(x+3)$$

   b) Factor. *(Express as a product.)*

   $$-5x-15$$

   c) Multiply.

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

   d) Factor.

   $$x^2+7x+12$$

3. Factor each expression.

   a) $3x+12$

   b) $3x-12$

   c) $-3x-12$

   d) $-3x+12$

4. Factor each trinomial.

   a) $x^2+7x+10$

   b) $x^2+11x+18$

   c) $x^2+10x+25$

   d) $x^2-10x+25$

5. Multiply and try to find a pattern for the answers.

a) $(x+3)(x+3)$

b) $(x-3)(x-3)$

c) $(x+4)(x+4)$

d) $(x-4)(x-4)$

6. Multiply.

a) $(x+7)^2$
$=(x+7)(x+7)$

b) $(x-7)^2$
$=(x-7)(x-7)$

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

d) $(x-9)^2$
$=(x-9)(x-9)$

e) $(x+8)^2$

f) $(x-8)^2$

Be careful: Check your answers for parts e) and f) again.

Example: $(x+5)^2$
$\neq x^2+25$ **(Incorrect)**

$(x+5)^2$
$=(x+5)(x+5)$
$=x^2+5x+5x+25$
$=x^2+10x+25$ **(Correct)**

7. Factor each trinomial and try to find a pattern for the answers.

a) $x^2 + 12x + 36$

b) $x^2 - 12x + 36$

c) $x^2 + 20x + 100$

d) $x^2 - 20x + 100$

e) $x^2 + 4x + 4$

f) $x^2 - 4x + 4$

Note: To express something as a square is to write it in the form $(\quad)^2$.

Example: from #7a) $x^2 + 12x + 36$
$= (x + 6)^2$

8. Can $x^2 + 12x + 35$ be written in the form $(\quad)^2$?

9. Write each trinomial as a square, if possible.

a) $x^2 + 8x + 16$

$= (\quad)^2$

b) $x^2 - 8x + 16$

c) $x^2 + 8x - 16$

d) $x^2 - 8x - 16$

e) $x^2 + 2x + 1$

f) $x^2 + 14x + 49$

10. Fill in the missing parts of each statement to make them true.

a) $x^2 + 10x + \_\_\_\_$

$= (x+5)^2$

b) $x^2 - 10x \_\_\_ 25$

$= (x-5)^2$

c) $x^2 + \_\_\_\_\_ + 144$

$= (x+12)^2$

d) $x^2 - 22x + 121$

$= (x - \_\_\_\_\_)^2$

e) $x^2 + 8x + \_\_\_\_$

$= (x + \_\_\_\_)^2$

f) $x^2 + \_\_\_\_\_ + 1$

$= (x + \_\_\_\_)^2$

g) $x^2 + 14x + \_\_\_\_$

$= (x + \_\_\_\_)^2$

h) $x^2 + \_\_\_\_\_ + 36$

$= (x + \_\_\_\_)^2$

11. Factor completely.

a) $3x^2 + 12x + 12$

b) $2x^2 - 12x + 18$

c) $-2x^2 + 20x - 50$

d) $-4x^2 - 32x - 64$

Pre-Calculus 11: Basic Skills Assignment #2 - Answers

2. a) $-5x-15$ b) $-5(x+3)$
   c) $x^2+7x+12$ d) $(x+3)(x+4)$

3. a) $3(x+4)$ b) $3(x-4)$
   c) $-3(x+4)$ d) $-3(x-4)$

4. a) $(x+2)(x+5)$ b) $(x+2)(x+9)$
   c) $(x+5)^2$ d) $(x-5)^2$

5. a) x^2+6x+9 b) x^2-6x+9
   c) $x^2+8x+16$ d) $x^2-8x+16$

6. a) $x^2+14x+49$ b) $x^2-14x+49$
   c) $x^2+18x+81$ d) $x^2-18x+81$
   e) $x^2+16x+64$ f) $x^2-16x+64$

7. a) $(x+6)^2$ b) $(x-6)^2$
   c) $(x+10)^2$ d) $(x-10)^2$
   e) $(x+2)^2$ f) $(x-2)^2$

8. No

9. a) $(x+4)^2$ b) $(x-4)^2$
   c) not possible d) not possible
   e) $(x+1)^2$ f) $(x+7)^2$

10. a) 25 b) +
    c) 24x d) 11
    e) 16, 4 f) 2x, 1
    g) 49, 7 h) 12x, 6

11. a) $3(x+2)^2$ b) $2(x-3)^2$
    c) $-2(x-5)^2$ d) $-4(x+4)^2$