Bell Work

For problems # 1 and 2, use the function to the right.

$$f(x) = 4|x+5| - 6$$

1. **What is the vertex of the absolute value function to the right?**

2. **Describe the transformation.**

3. **What is the range in interval for the absolute value parent function?**

4. **Find the roots of the quadratic function to the right. Show all work.**
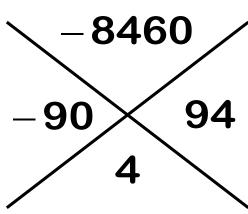
$$f(x) = 2x^2 + 5x - 12$$

1. A picture of the school has a width that is twice minus 15 cm more than its height. The area of the picture is 6300 cm². What are the picture's dimensions?

$$A = hw$$

$$6300 = h(2h - 15)$$

Multiply.

$$6300 = 2h^2 - 15h$$

Set 1 side = 0.

$$0 = 2h^2 - 15h - 6300$$

X-Game

$$0 = (2h^2 - 120h) + (105h - 6300)$$

$$0 = 2h(h - 60) + 105(h - 60)$$

$$0 = (h - 60)(2h + 105)$$

$$h = 60, \ -52.5$$ *Choose the positive answer.*

$$w = 2(60) - 15 = 105$$

The picture is 60 cm by 105 cm.

$$-12600$$

$$-120 \qquad 105$$

$$-15$$

2. A small park is being built. Its length of the park will be 3 times plus 4 meters longer than is width. The area of the new park will be 2820 m². What are the dimensions of the new park?

$$A = lw$$

$$2820 = (3w + 4)w$$

Multiply.

$$2820 = 3w^2 + 4w$$

Set 1 side = 0.

$$0 = 3w^2 + 4w - 2820$$

X-Game

$$0 = (3w^2 - 90w) + (94w - 2820)$$

$$0 = 3w(w - 30) + 94(w - 30)$$

$$0 = (w - 30)(3w + 94)$$

$$w = 30, \ -94/3$$ *Choose the positive answer.*

$$l = 3(30) + 4 = 94$$

The park is 30 m by 94 m.

$$-8460$$

$$-90 \qquad 94$$

$$4$$

3. The length of an enlarged photograph is twice minus 21 cm its height. The area of the enlarged photograph is 2795 cm². What are the dimensions of the enlarged photograph?

$$A = lw$$

$$2795 = (2w - 21)w$$ *Multiply.*

$$2795 = 2w^2 - 21w$$ *Set 1 side = 0.*

$$0 = 2w^2 - 21w - 2795$$ *X-Game*

$$0 = (2w^2 - 86w) + (65w - 2795)$$

$$0 = 2w(w - 43) + 65(w - 43)$$

$$0 = (w - 43)(2w + 65)$$

$$w = 43, \; -32.5$$ *Choose the positive answer.*

$$l = 2(43) + 4 = 90$$

The enlarged photograph is 43 cm by 90 m.

$$-5590$$

$$-86 \qquad 65$$

$$-21$$

Assignment:

Solving Word Problems by Factoring B Worksheet