

Expand the following polynomial expressions.

1.) $(x-7)(x+10)$

$$x^2 + 10x - 7x - 70$$

$$x^2 + 3x - 70$$

2.) $(4-9y)(10-y)$

$$40 - 4y - 90y + 9y^2$$

$$9y^2 - 94y + 40$$

3.) $2a^2(4a^3 + 11a + 3)$

$$8a^5 + 22a^3 + 6a^2$$

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

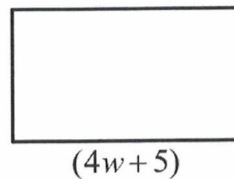
$$x^4 - 10x^3 + 6x^2$$

$$5x^3 - 50x^2 + 30x$$

$$-4x^2 + 40x - 24$$

$$x^4 - 5x^3 - 48x^2 + 70x - 24$$

5.) The area of a rectangle is found by finding the product of the length and width. Find the area of the rectangle below in terms of w .



$$(w-9)(4w+5)$$

$$4w^2 + 5w - 36w - 45$$

$$4w^2 - 31w - 45$$

Factor the following polynomials.

6.) $x^2 + 3x + 2$

$$(x+2)(x+1)$$

7.) $x^2 - 5x - 6$

$$(x-6)(x+1)$$

8.) $x^2 - 11x + 24$

$$(x-3)(x-8)$$

9.) $x^2 - 49$

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

10.) $x^2 + 13x - 90$

$$(x+18)(x-5)$$

11.) $x^3 + 7x^2 - 30x$

$$x(x^2 + 7x - 30)$$

$$x(x-3)(x+10)$$

Factor and solve.

$$12.) x^2 - 5x - 6 = 0$$

$$(x-6)(x+1) = 0$$

$$x = 6, -1$$

$$13.) x^2 - 4x - 5 = 0$$

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

$$x = 5, -1$$

$$14.) x^2 + 6x - 40 = 0$$

$$(x+10)(x-4) = 0$$

$$x = -10, 4$$

$$15.) n^2 + 7n + 15 = 5$$

$$n^2 + 7n + 10 = 0$$

$$(n+5)(n+2) = 0$$

$$n = -5, -2$$

$$16.) 4x^2 = 25$$

$$4x^2 - 25 = 0$$

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

$$x = \frac{5}{2}, -\frac{5}{2}$$

$$17.) 5r^2 - 44r + 120 = -30 + 11r$$

$$5r^2 - 55r + 150 = 0$$

$$\frac{5r^2 - 55r + 150}{5} = \frac{0}{5}$$

$$r^2 - 11r + 30 = 0$$

$$(r-6)(r-5) = 0$$

$$r = 6, 5$$