

Notes 7.7

1. $25x^2 - 49$

$(5x+7)(5x-7)$

one plus and negative

take the square root of

$$\sqrt{25x^2} = 5x$$

take the square root of

$$\sqrt{49} = 7$$

check using Foil

$(5x+7)(5x-7)$

$$25x^2 - 35x + 35x - 49$$

$$25x^2 - 49$$

Answer

$$(5x+7)(5x-7)$$

2)

$$x^2 - 25$$

one plus one negative

$$\sqrt{x^2} = x$$

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

$$\sqrt{25} = 5$$

check using Foil

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

$$x^2 + 5x - 5x - 25$$

$$x^2 - 25$$

Answer

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

3) $64x^2 - 1$ one plus one minus

$(8x + 1)(8x - 1)$ $\sqrt{64x^2} = 8x$

$\sqrt{1} = 1$

Check using FOIL

$(8x + 1)(8x - 1)$
 $64x + 8x - 8x - 1$
 $64x - 1$

Answer
 $(8x + 1)(8x - 1)$

4) $25x^2 - 144$ answer, $\sqrt{25x^2} = 5x$

$(5x + 12)(5x - 12)$ $\sqrt{144} = 12$

check

5) $64x^2 - 81$ answer $\sqrt{64x^2} = 8x$

$(8x + 9)(8x - 9)$ $\sqrt{81} = 9$

check

$(8x + 9)(8x - 9)$
 $64x^2 - 72x + 72x - 81$
 $64x^2 - 81$

Notes on 7.7

2. You are installing linoleum squares in your kitchen.

The area of each linoleum square is $81x^2 + 144x + 64$

What is the length of one side of a linoleum square?

$$81x^2 + 144x + 64$$

take the square of

$$\sqrt{81x^2} = 9x$$

$$(9x + 8)(9x + 8)$$

take the square of

$$\sqrt{64} = 8$$

check using FOIL

$$\begin{array}{c} \text{F} \quad \text{L} \\ (9x + 8) \quad (9x + 8) \\ \text{I} \quad \text{O} \end{array}$$

$$81x^2 + 72x + 72x + 64$$

$$81x^2 + 144x + 64$$

The length of the side

$$(9x + 8)$$

notes on 7.7

Factoring Special cases.

1. The area of a square oil painting is

$64x^2 + 48x + 9$. What is the length of one side of the painting?

$$64x^2 + 48x + 9$$

take the square root of

$$\sqrt{64x^2} = 8x$$

take the square root of

$$\sqrt{9} = 3$$

$$(8x + 3)(8x + 3)$$

check using FOIL

$$(8x + 3)(8x + 3)$$

$$64x^2 + 24x + 24x + 9$$

$$64x^2 + 48x + 9$$

The length of the side is $(8x + 3)$