

Notes 7.6 Factoring

1)

$$2w^2 + 13w + 15$$

factors
of
2
2.1

both are +

$$(2w + 3)(w + 5)$$

factors of 15

$$1 \cdot 15$$

$$3 \cdot 5$$

check using foil

$$(2w + 3)(w + 5)$$

out

$$2w^2 + 10w + 3w + 15$$

$$2w^2 + 13w + 15$$

2) $3d^2 + 20d + 12$

factors
of
3
3.1

$$(3d + 2)(d + 6)$$

factors

of 12

$$1 \cdot 12$$

$$2 \cdot 6$$

$$3 \cdot 4$$

I chose 2 and 6

because $6 \times 3 = 18$

$$2 \times 1 = +2$$

and $\rightarrow 20$ is in the middle

check using foil

$$(3d + 2)(d + 6)$$

$$3d^2 + 18d + 2d + 12$$

$$3d^2 + 20d + 12$$

Notes 7.6

3) $3p^2 - 7p - 40$

factors of 3
3

3 · 1

$(3p + 8)(p - 5)$

factors of 40

1 · 40

2 · 20

4 · 10

5 · 8

a negative times a positive = a negative.

check using foil

$(3p + 8)(p - 5)$
 F L
 I O

$3p^2 - 15p + 8p - 40$

$3p^2 - 7p - 40$

4) $5x^2 - 17x + 14$

factors of 5
5

5 · 1

$(5x - 7)(x - 2)$

two negatives equal a positive

factors of 14

1 · 14

2 · 7

check using foil

$(5x - 7)(x - 2)$
 F L
 I O

$5x^2 - 7x - 10x + 14$

$5x^2 - 17x + 14$

notes 7.6

- 5) The area of a rectangular screen is $4x^2 + 20x + 16$. The width of the screen is $2x + 8$. What is the length of the countertop?

$$4x^2 + 20x + 16$$

divide the $4x^2$ by $2x$
you get $2x$

$$(2x + 8) \boxed{(2x + 2)}$$

answer divide the 16 by 8
you get 2

check using FOIL

$$\begin{array}{c} \text{F} \quad \text{L} \\ (2x + 8) \text{---} (2x + 2) \\ \text{I} \quad \text{O} \end{array}$$

$$4x^2 + 4x + 16x + 16$$

$$4x^2 + 20x + 16$$

The length of the countertop is $\boxed{2x + 2}$
answer.

- 6) The area of a rectangular granite countertop is $2x^2 - 5x - 12$. The width of the countertop is $2x + 3$. What is the length of the countertop?

$$2x^2 - 5x - 12$$

$$(2x + 3)(x - 4)$$

check using FOIL

$$(2x + 3)(x - 4)$$

$$2x^2 - 8x + 3x - 12$$

$$2x^2 - 5x - 12$$

divide $2x^2$ by $2x$

you get x

divide -12 by 3

you get -4