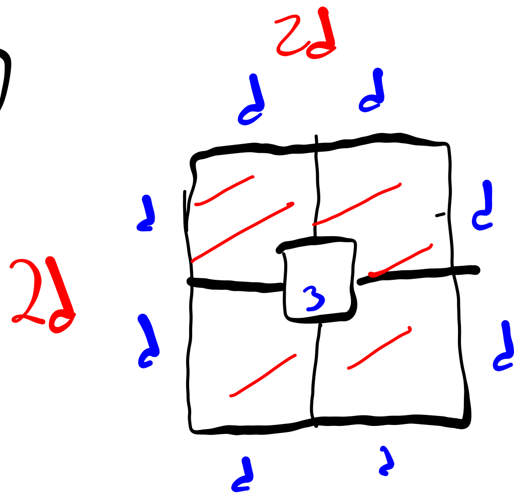
51



Frame = 91 sq in.

$A = l \cdot w$

$A = 2d \cdot 2d = \boxed{4d^2 - 9}$

$4d^2 - 9 = 91$

$\dfrac{4d^2 - 100 = 0}{4}$

$4d^2 + 0d - 100 = 0$

$d^2 - 25 = 0$

$(d+5)(d-5) = 0$

$d = -5$ or $d = 5$

$\boxed{10 \text{ in}}$

1, 4
2, 2

1, 100
2, 50
4, 25
5, 10

31 $\frac{6p^2 = 864}{6}$

$p^2 = 144$

$-144 \quad -144$

$p^2 - 144 = 0$

$(p + 12)(p - 12) = 0$

$p = -12$ or $p = 12$

$$6 \overline{)864} = 144$$

6

26

24

24

28 $32 - 18m^2 = 0$

$\sqrt{-9} = x$

$$\frac{-18m^2 + 32 = 0}{2}$$

$$\frac{-9m^2 + 16 = 0}{-1} = \begin{array}{l} 9m^2 - 16 = 0 \\ (3m+4)(3m-4) = 0 \\ m = \frac{-4}{3} \text{ or } m = \frac{4}{3} \end{array}$$

34

$-\frac{4}{3}x+\frac{4}{9}=-x^2$

$+x^2 \qquad +x^2$

$\sqrt{\frac{4}{9}}=\frac{\sqrt{4}}{\sqrt{9}}=\frac{2}{3}$

$9\left(x^2-\frac{4}{3}x+\frac{4}{9}=0\right)=9x^2-12x+4$

$\left(x-\frac{2}{3}\right)\left(x-\frac{2}{3}\right)=0$

$(3x-2)(3x-2)$

$x=\frac{2}{3}$

$3x-2=0$

$3x=2$

$x=\frac{2}{3}$

37

$$-9c^2 = -16$$
$$+16 \quad +16$$

$$\frac{-9c^2 + 16 = 0}{-1 \qquad -1}$$

$$9c^2 - 16 = 0$$

$$(3c + 4)(3c - 4) = 0$$

$$c = \frac{-4}{3} \qquad c = \frac{4}{3}$$

$3c + 4 = 0$ or $3c - 4 = 0$

$-4 \quad -4 \qquad +4 \quad +4$

$$\frac{3c}{3} = \frac{-4}{3} \qquad \frac{3c}{3} = \frac{4}{3}$$

$$c = \frac{-4}{3} \qquad c = \frac{4}{3}$$

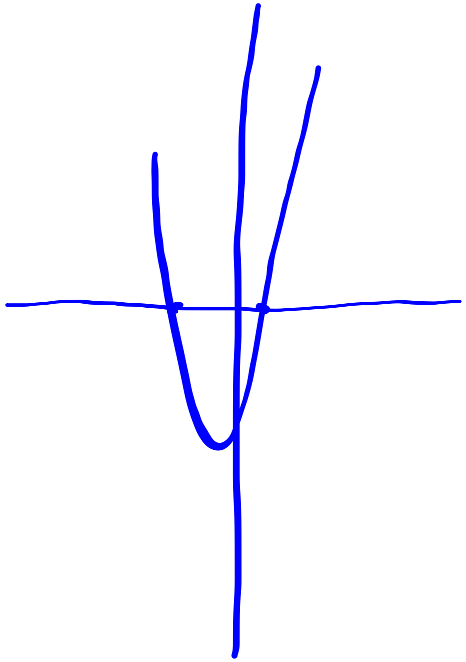
Find the zeros of the function:

$g(x) = 2x^2 + x - 1$

$0 = 2x^2 + x - 1$

$0 = (2x - 1)(x + 1)$

$x = \frac{1}{2}$ or $x = -1$



$$-5b^2 + 7b = 2$$
$$-2 \quad -2$$

$$\frac{-5b^2 + 7b - 2}{-1} = \frac{0}{-1}$$

$$5b^2 - 7b + 2 = 0$$

$$(5b - 2)(b - 1) = 0$$

$b = \frac{2}{5}$ or $b = 1$

$$ax^2 + bx + c = 0$$

SOLVE

$$\frac{6x^2+14x}{2}=\frac{0}{2}$$

$$ax^2+bx+c=0$$

$$3x^2+7x=0 \quad \not\longrightarrow \quad (x+p)(x+q)=0$$

No!

$$x(3x+7)=0$$

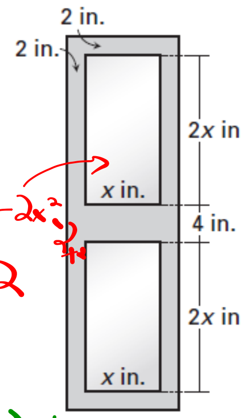
$$x=0 \qquad 3x+7=0$$

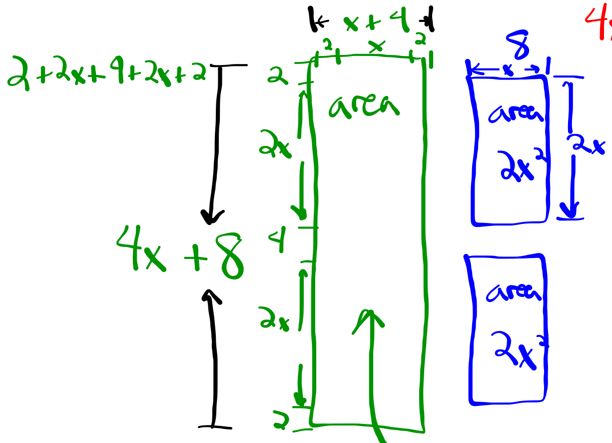
$$x=\frac{-7}{3}$$

Wall Mirror You plan on making a wall hanging that contains two small mirrors as shown.

a. Write a polynomial that represents the area of the wall hanging.

b. The area of the wall hanging will be 480 square inches. Find the length and width of the mirrors you will use.





$4x^2+24x+32-2x^2$

$24x+32$

16

$(4x+8)(x+4)=$

$4x^2+16x+8x+32$

$4x^2+24x+32$

$$\frac{4x^2+24x+32}{4}=\frac{480}{4}$$

$$x^2+6x+8=120$$
$$-120 \quad -120$$
$$x^2+6x-112=0$$

1	112
2	56
4	28
8	14

$(x+14)(x-8)$

$x=-14 \quad x=8$

Wallpaper You trimmed a large strip of wallpaper from a scrap to fit into the corner of a wall you are wallpapering. You trimmed 15 inches from the length and 6 inches from the width. The area of the resulting strip of wallpaper is 684 square inches.

a. If the length of the original strip of wallpaper is four times the original width, write a polynomial that represents the area of the trimmed strip of wallpaper.

b. What are the dimensions of the original scrap of wallpaper?