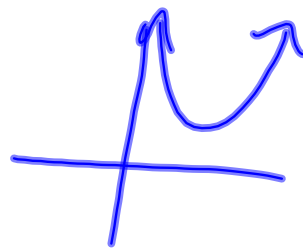


Homework:

$$24. y = a(x-p)^2 + q$$

$$x = p \pm \sqrt{\left| \frac{q}{a} \right|}$$



$$(i) y = 2(x+1)^2 - 8$$

$$x = -1 \pm \sqrt{\left| \frac{-8}{2} \right|}$$

$$x = -1 \pm \sqrt{4}$$

$$x = -1 \pm 2$$

$$x = -3, 1$$

$$(ii) y = -(x+2)^2 + 9$$

$$x = -2 \pm \sqrt{\left| \frac{9}{-1} \right|}$$

$$x = -2 \pm 3$$

$$x = -5, 1$$

Simplify $\frac{10+3x-x^2}{x^2+6x+8}$ $x \neq -4, -2$

$$\begin{aligned}
 & -x^2+3x+10 \quad (x+4)(x+2) \\
 & -1(x^2-3x-10) \\
 & -1(x-5)(x+2) \\
 & \quad \quad \quad = \frac{-1(x-5)(x+2)}{(x+4)(x+2)} \\
 & \quad \quad \quad = \frac{-x+5}{x+4}
 \end{aligned}$$

Simplify $\frac{9-x^2}{x^2+x-12}$ $x \neq -4$ or 3

$$\begin{aligned}
 & -1 \frac{(3-x)(3+x)}{(x+4)(x-3)} \\
 & = \frac{-3-x}{x+4}
 \end{aligned}$$

Simplify $\frac{a^2+2a-24}{16-a^2}$

$$\begin{aligned}
 & \frac{(a+6)(a-4)}{(4-a)(4+a)} \\
 & = \frac{-a-6}{a+4}
 \end{aligned}$$

Chapter 6

Simplifying Rational Expressions

Identify each of the following as true or false.
Click on the box to reveal the solution.

1. $\frac{x+4}{2} = x+2, x \neq 0$

F

2. $\frac{x^4 - 2x}{x} = x^3 - 2, x \neq 0$

T

3. $\frac{x^2 - 4}{x - 2} = x + 2, x \neq 2$

T

4. $\frac{x^2 + 6x + 8}{x + 2} = x + 4, x \neq 2, 4$

F

5. $\frac{r^2 - 4}{5r + 10} = \frac{r - 2}{5}, r \in R$

F

6. $\frac{3t^2 - 8t + 4}{6t^2 - 4t} = \frac{t - 2}{2t}, t \neq 0, \frac{2}{3}$

$\frac{(r-2)(r+2)}{5(r+2)}$

$3t^2 - 6t - 2t + 4$
 $3t(t-2) - 2(t-2)$
 $(t-2)(3t-2)$

$\frac{(t-2)(3t-2)}{2t(3t-2)}$

Chapter 6

Solution

a) $A = lw$

$$l = \frac{A}{w}$$

$$= \frac{x^2 + 3x + 2}{x + 1}, x > -1$$

c) Ratio = $\frac{l}{w}$

$$= \frac{x + 2}{x + 1}$$

$$= \frac{1 + 2}{1 + 1}$$

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

b) $\frac{x^2 + 3x + 2}{x + 1} = \frac{(x + 2)(x + 1)}{x + 1}$

$$= x + 2, x > -1$$

The area of a rectangular garden can be represented by the polynomial $x^2 + 3x + 2$ and its width by $x + 1$.

- a) Write a rational expression that represents the length.
- b) Write the expression in simplest form.
- c) If x represents 1 unit of length, what is the ratio of length to width for this garden?

a) $A = lw$

$$l = \frac{A}{w}$$

$$= \frac{x^2 + 3x + 2}{x + 1}$$

$$= \frac{(x + 2)(\cancel{x + 1})}{\cancel{x + 1}}$$

$$A = x^2 + 3x + 2$$

$$l = x + 2$$

(c) $x = 1$
 $x + 2 : x + 1$

$$1 + 2 : 1 + 1$$

$$3 : 2$$

Practice Problems...

Pages 317 - 321

#4, 6, 8, 13, 15, 17, 19, 21, 22, 24, 25, 26

Bonus: # 27