

Factor completely.

1.  $x^2 - 25 = (x+5)(x-5)$

2.  $\frac{2x^2 - 2}{2} = \frac{2(x^2 - 1)}{2} = 2(x+1)(x-1)$

3.  $x^2 - 20x + 100 = (x-10)(x-10)$   
 (PS: 1-100, 2-50, 4-25, 5-20, 10-10)

4.  $16x^2 + 24x + 9 = (4x+3)^2$   
 (PS: 4x, 12x, 3)

5.  $g^2 - 3g - 40 = (g+5)(g-8)$   
 (PS: 1-40, 2-20, 4-10, 5-8)

6.  $x^2 + 4x - 12 = (x+6)(x-2)$   
 (PS: 1-12, 2-4)

7.  $x^2 + 17x + 72 = (x+8)(x+9)$   
 (PS: 1-72, 2-36, 3-24, 4-9)

8.  $2x^2 + 6x + 3$

$16x^2 + 12x + 12x + 9$   
 $4x(4x+3) + 3(4x+3)$   
 $(4x+3)(4x+3)$

$$x^2 - 81$$
$$(x + 9)(x - 9)$$

$$25x^2 - 70x + 49$$
$$\begin{array}{c} \downarrow \qquad \qquad \qquad \downarrow \\ 5x \rightarrow 35x \leftarrow 7 \end{array}$$
$$(5x - 7)^2$$

p. 455

Undefined? Simplify.

$$1. \frac{y^2 - 25 \overset{1 \cdot 25}{\underset{5 \cdot 5}}{}}{y^2 - 10y + 25 \overset{1 \cdot 25}{\underset{5 \cdot 5}}{}} = \frac{(y+5)(\cancel{y-5})}{(y-5)(\cancel{y-5})}$$

$$\frac{y+5}{y-5}, \text{ where } y \neq 5$$

$$\begin{array}{l} y-5=0 \\ +5 \quad +5 \\ \hline y=5 \end{array}$$

$$2. \frac{n+4}{16} \cdot \frac{12}{n^2-16} = \frac{(\cancel{n+4}) \overset{3 \cdot 4}{\cancel{(12)}}}{(\cancel{16}) \overset{4 \cdot 4}{\cancel{(n+4)}} \underset{-4}{\cancel{(n-4)}}}$$

$$= \frac{3}{4(n-4)}, \text{ where } n \neq -4, 4$$

$$3. \frac{t^2 + 2t}{t^2 - 4} \div \frac{t}{3t - 6}$$

$$\frac{(\cancel{t^2 + 2t}) \cdot (\cancel{3t - 6})}{(\cancel{t^2 - 4}) \cdot (t)} = \frac{\cancel{t}(\cancel{t+2})(3)(\cancel{t-2})}{(\cancel{t+2})(\cancel{t-2})(\cancel{t})}$$

3, where  $t \neq 2, -2, 0$

$$\begin{array}{ll} t+2=0 & t-2=0 \\ t=-2 & t=2 \end{array}$$

Odd problems

9.6, 9.7, 11.3, 11.4

$t=0$