

# More simplifying rational expressions

17)

$$\frac{p^2 + 9p - 10}{p^2 - 7p + 6}$$

$$\frac{\cancel{(p-1)}(p+10)}{(p-6)\cancel{(p+1)}}$$

add = 9  
↑  
+  
larger

mult = -10  
-1, 10  
-2, 5  
~~-5, 2~~  
~~-10, 1~~

add = -7  
-1, -6  
+1, +  
-2, -3

$$\frac{p+10}{p-6}$$

$p \neq 1, 6$

7)

$$\frac{a+4}{a^2 + 11a + 28}$$

$$= \frac{\cancel{a+4} \cdot 1}{(a+4)(a+7)}$$

= 0 or 0

$a+4=0$     $a+7=0$   
-4 -4   -7 -7  
 $a=-4$     $a=-7$

add = 11   mult = 28  
+ +  
1, 28  
2, 14  
4, 7

$$\frac{1}{a+7}$$

$a \neq -4, -7$

14)

$$\frac{x^2 - 2x - 63}{x^2 - 14x + 45}$$

$$\frac{\cancel{(x+7)}(x-9)}{(x-5)\cancel{(x-9)}}$$

add = -2   mult = -63  
- → +  
+ -  
1, -63  
3, -21  
7, -9

add = -14   mult = 45  
-1, -45  
-3, -15  
-5, -9

$$\frac{x+7}{x-5}$$

$x \neq 5, 9$

17)

$$\frac{x^2 + 2x - 3}{x^2 - 3x - 18}$$

19)

$$\frac{16}{56p - 40}$$

$$= \frac{\cancel{8}(2)}{\cancel{8}(7p-5)}$$

$7p-5=0$   
 $7p+5=5$   
 $7p=5$   
 $7$   
 $p=\frac{5}{7}$

$$\frac{2}{7p-5}$$

$p \neq \frac{5}{7}$

8)

$$\frac{56k}{40k^2 - 72k}$$

$$\frac{\cancel{8k}(7)}{\cancel{8k}(5k-9)} = \frac{7}{5k-9}$$

$8k=0$     $5k-9=0$   
 $k=0$     $\quad \quad \quad +9+9$   
 $\quad \quad \quad \frac{5k=9}{5} \quad \frac{5}{5}$   
 $\quad \quad \quad k=\frac{9}{5}$

$k \neq 0, \frac{9}{5}$

13)

$$\frac{28b^2 - 32b}{20b^2 - 16b}$$

$$= \frac{\cancel{4b}(7b-8)}{\cancel{4b}(5b-4)}$$

$4b=0$     $5b-4=0$   
 $b=0$     $b=\frac{4}{5}$

$b \neq 0, \frac{4}{5}$