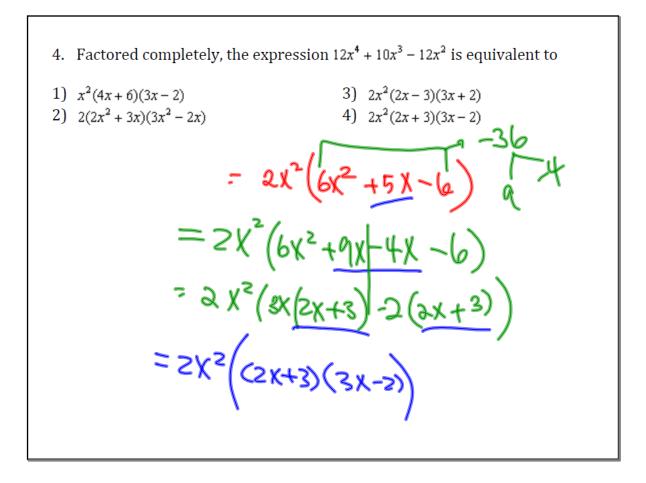


3. Factor:  $a^{2}-3ab(-a+3b)$  -a(a-3b)(-1(a-3b)) =(a-3b)(a-1)-3k-9



5. Factor: 
$$3a^{2} + a - 2$$
  

$$= 30^{2} + 3a - 2a - 2$$

$$= 3a(a + 1) - 2(a + 1)$$

$$= (a + 1)(3a - 2)$$

6. Factor: 
$$10x^{2} + 11x - 6$$
  

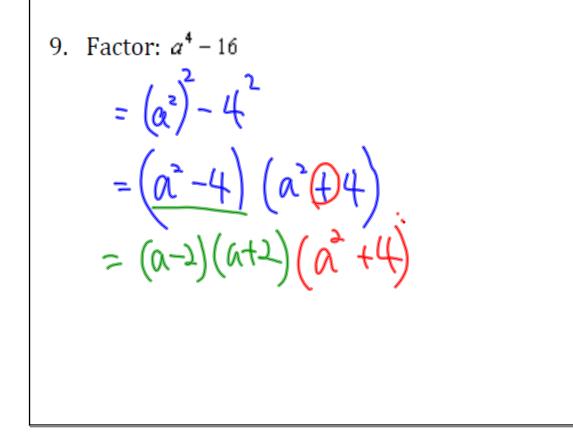
$$= 10x^{2} + 15x - 4x - 6$$

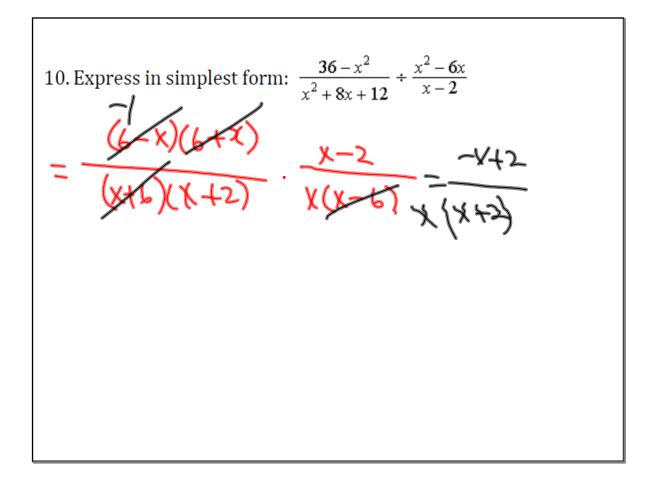
$$= 5x(2x + 3) - 2(2x + 3)$$

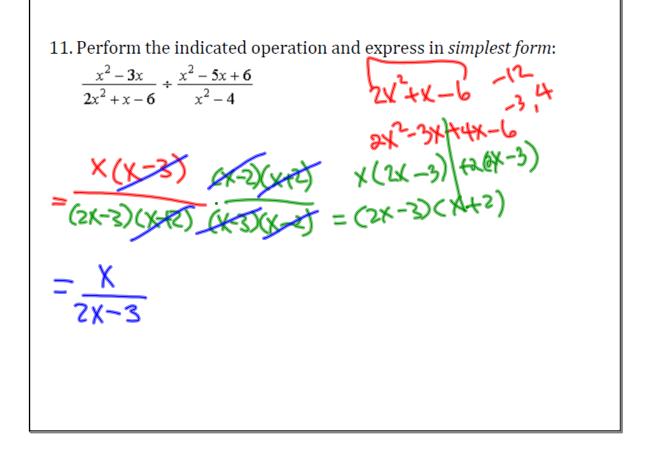
$$= (2x + 3)(5x - 2)$$

7. Factor: 
$$12a^{2} + 14a - 6$$
  
=  $2(6a^{2} + 7a - 3) = 3$   
=  $2(6a^{2} + 9a) - 2a - 3$   
=  $2(3a(2a+3) - ((2a+3))$   
=  $2(2a+3)(3a-1)$ 

8. Factor: 
$$16x^2 - 9$$
  
=  $(4x)^2 - 3^2$   
=  $(4x - 3)(4x + 3)$ 





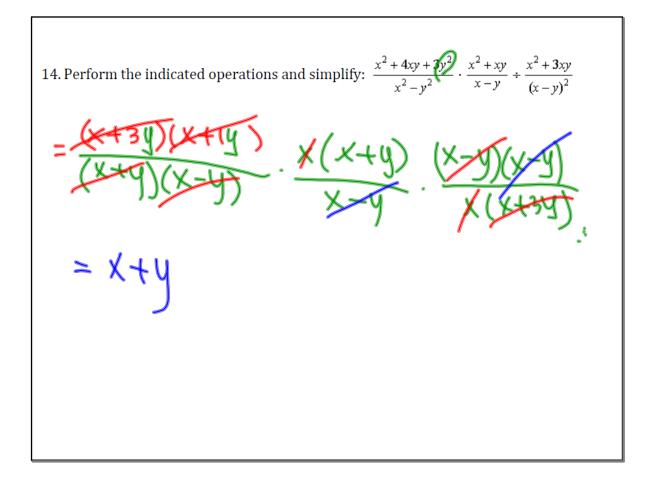


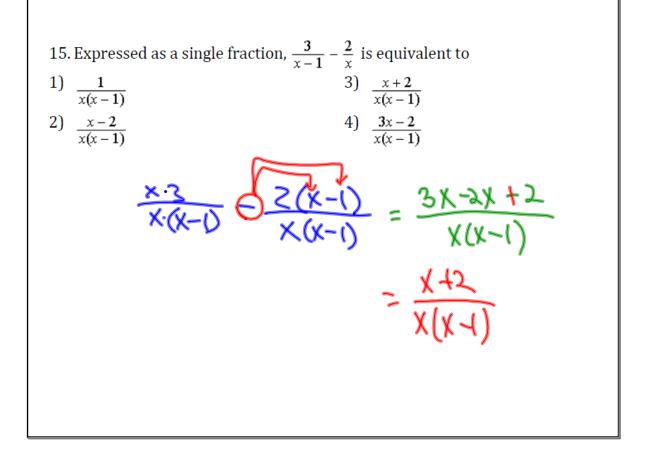
12. Perform the indicated operations and express in lowest terms:  

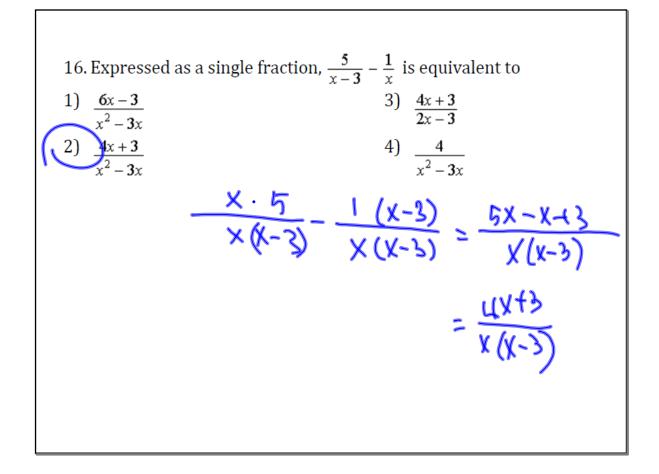
$$\frac{x^{2}-9}{2x+4} \cdot \frac{x^{2}+7x+10}{x^{2}-3x-18} \cdot \frac{x^{2}+2x-15}{2x^{2}-12x}$$

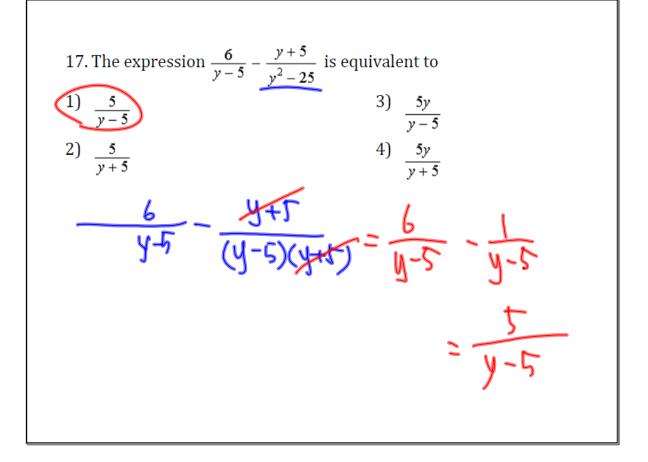
$$= (x+5)(x+5) \cdot (x+5) \cdot (x+5$$

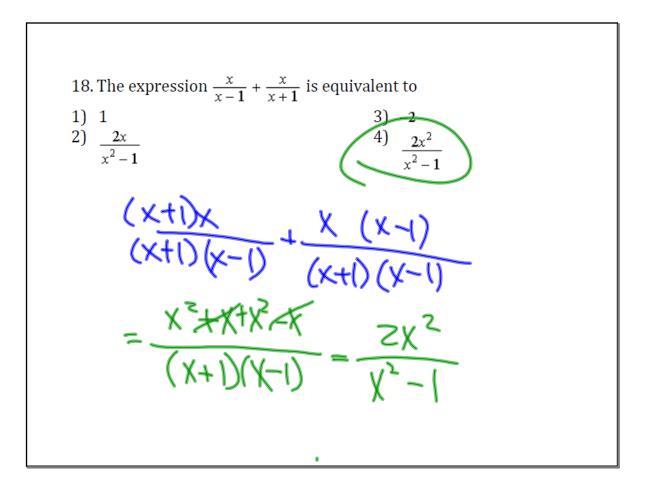
13. Express in simplest form:  $\frac{x^2 - 16}{2x^2 + 4x} \left( \frac{x^2 + 9x + 14}{x^2 + 2x - 8} \right)$  $\frac{x^2 + 3x - 28}{16x - 8x^2}$ 

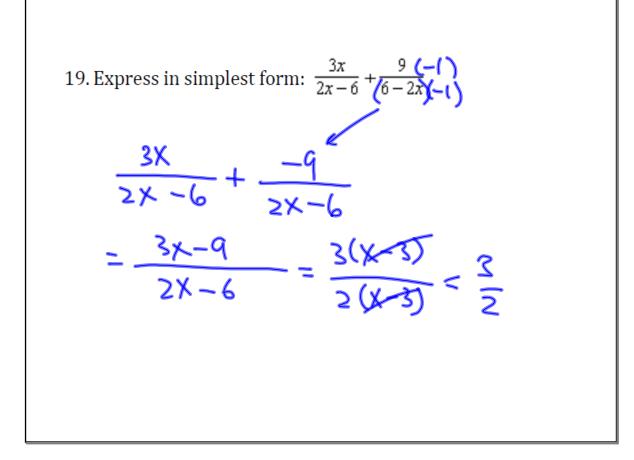












20. Express in simplest form: 
$$\frac{3a+1}{a^2-1} - \frac{1}{a+1}$$
  
=  $\frac{3a+1}{(a+1)(a-1)} - \frac{1(a-1)}{(a+1)(a-1)}$   
=  $\frac{3a+1-a+1}{(a+1)(a-1)} - \frac{3a+2}{(a+1)(a-1)}$   
=  $\frac{2a+1}{(a+1)(a-1)} - \frac{2}{(a+1)(a-1)}$ 

21. Simplify: 
$$\left(\frac{a+2b}{2a+b} - \frac{a-2b}{2a-b}\right)\left(\frac{1}{b} + \frac{b}{2ab}\right)$$

$$= \left(\frac{(a+2b)(2a-b)}{(2a+b)(2a-b)} - \frac{(a-2b)(2a+b)}{(2a-b)(2a+b)}\right)\left(\frac{12a}{ba} + \frac{b}{baa}\right)$$

$$= \left(\frac{2a^2 + 3ab - 2b^2}{(2a+b)(2a-b)} - \frac{(2a^2 - 3ab - 2b^2)}{(2a+b)(2a-b)} - \frac{2a+b}{2ab}\right)$$

$$= \frac{3}{(2a+b)(2a-b)} - \frac{3}{2a+b} - \frac{3}{2a-b}$$

