

<p>1. State the domain of</p> <p>(a) $\frac{10}{12y} =$</p> <p>(b) $\frac{x}{x-1}$</p>	<p>2. Simplify completely.</p> <p>(a) $\frac{4x}{12x-6y}$</p> <p>(b) $\frac{1-y^2}{y-1}$</p>
<p>3. Write in the missing numerator.</p> <p>(a) $12x = \frac{\quad}{3x-2}$</p> <p>(b) $\frac{4x}{x-2} = \frac{\quad}{x^2-3x+2}$</p>	<p>4. Multiply and simplify.</p> <p>(a) $\frac{5x^2}{y} \cdot \frac{5xy^3}{15y^2}$</p> <p>(b) $\frac{x^2-25}{x^2+x-20} \cdot \frac{x^2+7x+12}{x^2-2x-15}$</p>

5. Divide and simplify.

(a) $20y \div \frac{12x^2}{5y^2}$

(b) $\frac{2u}{3v} \div u^2$

6. Divide and simplify.

(a) $\frac{x-6}{x^2-12x+36} \div \frac{x^2+7x+12}{x^2-3x-18}$

(b) $\frac{5x^2+17x-12}{3x^2+7x-20} \div \frac{x^2-16}{3x-5}$

7. Add and simplify.

(a) $\frac{9w^2}{7} + \frac{2w^2}{7}$

(b) $\frac{x+8}{x-2} - \frac{x-7}{x-2}$

8. Find the LCM.

(a) LCM ($3x^5yz^2$, $12xy^5z^3$)

(b) LCM ($3x-1$, $9x^2-1$)

9. Add and simplify.

(a) $\frac{1}{2x-1} + \frac{1}{2x+1}$

(b) $\frac{2x-1}{5x+4} + 9$

10. Subtract and simplify.

(a) $\frac{1}{x+5} - \frac{2}{x^2+7x+10}$

(b) $\frac{1}{x^2-8x+15} - \frac{1}{5-x}$

11. Simplify.

$$\frac{\frac{5}{\frac{m}{2}}}{n}$$

12. Simplify.

$$\frac{\frac{1}{5x} + \frac{1}{4x}}{\frac{1}{2x}}$$

13. Simplify.

$$\frac{7x + \frac{1}{2x}}{3y - \frac{1}{3y}}$$

14. Solve.

$$\frac{3}{4x} = \frac{5}{2x} - \frac{7}{4}$$

15. Solve.

$$\frac{3}{x+2} - \frac{2}{x^2-4} = \frac{1}{x-2}$$

16. Solve.

$$\frac{x-4}{x+6} = \frac{2x+3}{2x-1}$$

17. Solve.

$$\frac{2}{x^2 + x - 6} + \frac{1}{x^2 - x - 2} = \frac{4}{x^2 + 4x + 3}$$

18. What number must be subtracted from the numerator and added to the denominator of $\frac{59}{60}$ to get a fraction equivalent to $\frac{7}{10}$?

19. Andrew can tile a floor in 8 hours, and Angela can tile the same floor in 9 hours. How long would it take them working together to tile the floor? (Write your answer in hours and minutes)

	Rate	Time	Amt Work Done
Andrew			
Angela			

20. A boat can travel 12 miles upstream in the same time it takes to travel 20 miles downstream in the same river. If the boat's speed is 32 mph in still water, what is the speed of the current?

	Rate	Time	Distance
upstre am			
downst ream			

For Reference

Rules for Fractions

For any real numbers, $a, b, c,$ and $d, b \neq 0, c \neq 0,$ and $d \neq 0$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c} \qquad \frac{a}{c} - \frac{b}{c} = \frac{a-b}{c} \qquad \frac{a}{b} \cdot \frac{c}{d} = \frac{ac}{bd} \qquad \frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \cdot \frac{d}{c} = \frac{ad}{bc}$$

Factoring Methods for Polynomials of 2-4 Terms									
<i>Number of terms</i>	<i>Step 1</i>	<i>Identify the polynomial or polynomial factor</i>	<i>Step 2</i>						
2	Factor out any GCF	Difference of squares \Rightarrow	$a^2 - b^2 = (a + b)(a - b)$						
		Sum of cubes \Rightarrow	$a^3 + b^3 = (a + b)(a^2 - ab + b^2)$						
		Difference of cubes \Rightarrow	$a^3 - b^3 = (a - b)(a^2 + ab + b^2)$						
		None of the above \Rightarrow	Prime – or cannot be factored by methods shown in this course.						
3	Factor out any GCF	$x^2 + bx + c \Rightarrow$	$= (x \quad)(x \quad)$ <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td colspan="2">Product c</td></tr> <tr><td> </td><td> </td></tr> <tr><td colspan="2">Sum b</td></tr> </table>	Product c				Sum b	
		Product c							
Sum b									
$ax^2 + bx + c \Rightarrow$	$ax^2 + bx + c = ax^2 + b_1x + b_2x + c$ <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td colspan="2">Product ac</td></tr> <tr><td>b_1</td><td>b_2</td></tr> <tr><td colspan="2">Sum b</td></tr> </table> <p>Then factor by grouping or box method.</p>	Product ac		b_1	b_2	Sum b			
Product ac									
b_1	b_2								
Sum b									
None of the above \Rightarrow	Prime – or cannot be factored by methods shown in this course.								
4	Factor out any GCF		Try to factor by grouping or box method.						