

1. The dollar amount  $d$  that Jane earns varies directly as the number of hours  $t$  that she works. If  $d = \$115.35$  when  $t = 15$  find  $t$  when  $d = 438.33$

2. Determine whether the following data set represents a direct or inverse variation.

x	2.7	61.2	41.4
y	3	68	46

Multiply or Divide. Assume that all expressions are defined.

3.  $\frac{x^2 - 25}{x^2 + 3x - 10} \cdot \frac{x^2 + x - 6}{x - 5}$

4.  $\frac{x + 7}{x^2 - 9x + 20} \div \frac{5x + 35}{x^2 - x - 12}$

5.  $\frac{4x^5 y^6}{2x^4} \cdot \frac{8}{y^3}$

Find the least common multiple for each pair.

6.  $7x^3y^8z^2$  and  $42x^5y^4$

7.  $4x^2 - 64y^2$  and  $4x - 16y$

Simplify . Assume that all expressions are defined.

8. 
$$\frac{\frac{3}{7} - \frac{3}{5x}}{\frac{5x-7}{x-5}}$$

9. 
$$\frac{\frac{4}{x-5}}{\frac{x-5}{7}}$$

Add or subtract. Assume all expressions are defined.

10. 
$$\frac{2x-5}{x+7} - \frac{7}{x}$$

11. 
$$\frac{x-2}{x^2+5x+6} + \frac{1}{x^2+3x}$$

12. 
$$\frac{x-1}{x^2+7x-8} - \frac{x+3}{x+8}$$

13. 
$$\frac{3x+2}{4x+5} - \frac{5x+8}{4x+5}$$

14. Use  $f(x) = \frac{x-1}{x^2+3x-4}$  to find the following: Accurately graph the function. If there is no answer to the blank, write "none".

Domain \_\_\_\_\_

Range \_\_\_\_\_

x-intercept(s) \_\_\_\_\_

y-intercept \_\_\_\_\_

horizontal asymptote \_\_\_\_\_

vertical asymptote(s) \_\_\_\_\_

hole in the graph at  $x =$  \_\_\_\_\_

