

1. Write a symbolic representation (formula) for $f(x)$ that divides x by the quantity x plus 1.

1. _____

2. Let $f(x) = \frac{3}{2x-3}$.

(a) Evaluate $f(2)$.

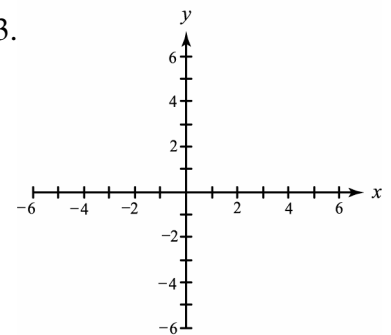
2. (a) _____

(b) Write the domain of f in set-builder notation.

(b) _____

3. Graph $f(x) = \frac{3}{2x-3}$. Show any vertical asymptotes as dashed lines.

3.



In #4 and #5, simplify the expression.

4. $\frac{1-3a}{3a-1}$

4. _____

5. $\frac{x^2+2x-3}{2x^2+3x-9}$

5. _____

In #6 through #10, simplify.

6. $\frac{x^2-9}{x^2+9} \cdot \frac{x-3}{x+3}$

6. _____

7. $\frac{1}{3y^4} \div \frac{1}{6y^2}$

7. _____

8. $\frac{x^3}{4y} - \frac{2y^2}{3x}$

8. _____

9. $\frac{1}{x+7} - \frac{6}{(x+7)^2}$

9. _____

10. $\frac{\frac{2}{x} - \frac{5}{x+3}}{\frac{3}{x} + \frac{3}{x+3}}$

10. _____

In #11 through #13, solve. Check your result.

11. $\frac{18}{3x-4} = 3$

11. _____

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

12. _____

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

13. _____

14. A triangle has sides with lengths 3, 7, and 9. Find the shortest side of a similar triangle with a longest side of length 6.

14. _____

15. Suppose y varies inversely as x . If $y = 12$ when $x = 6$, find y when $x = 9$.

15. _____

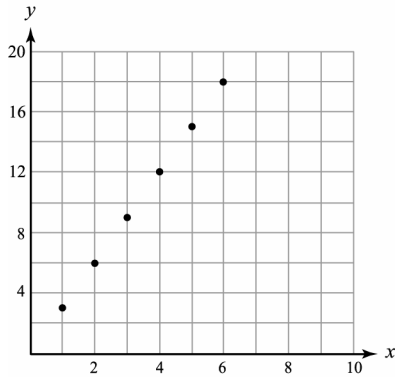
16. Use the table to determine whether the data represent direct or inverse variation. Find an equation that models the data.

16. _____

x	2	4	5	8
y	5	$\frac{5}{2}$	2	$\frac{5}{4}$

17. Determine whether the data represent direct or inverse variation. Find an equation that models the data.

17. _____



In #18 and #19, divide.

18. $\frac{21x+14x^2}{7x}$

18. _____

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

19. _____

20. Suppose that one worker can paint a fence in 6 hours, and another can paint it in 5 hours.

- (a) Write an equation whose solution gives the time needed for the workers, together, to paint the fence.
- (b) Solve the equation in part (a).

20. (a) _____

(b) _____