



The graph of a function $f(x)$ is shown.

Compute $f(4)$

If $g(x) = f(x) + 1$, compute $g(-2)$

If $h(x) = f(x + 1)$, compute $h(-2)$

If $k(x) = f(2x + 1) - 1$, compute $k(1)$

1.

2. (a) Study: Chapter 1 Equations, p. 45

(b) Study: Chapter 6 Equations, p. 211

(c) Section 21.1, (33,35,37) 21.2 (1-15 odd)

3. In solar heating applications, one encounters the following expression. Solve for T_1

$$Q = \frac{kAt(T_2 - T_1)}{L}$$

4. Solve for y .

$$5y - 2(y - 4) = 7$$

5. Simplify

$$\frac{8a^3x^2 - 4a^2x^4}{-2ax^2}$$

6. During a rainstorm, 1.00 in. of rain fell. What weight of water fell on an area one square mile (1.00 mi^2)? Each cubic foot of water weighs 62.4 pounds.

7. (a) Simplify the expression completely.

$$\frac{(x + h)^3 - x^3}{h}$$

(b) Simplify

$$\frac{\frac{y}{x} + \frac{x}{y}}{\frac{x + y}{xy}}$$

8. Assume snow is falling at a constant rate. During a storm we know that at noon the snow depth is 12 inches, and at 6pm the snow depth is 20 inches. If the storm continues at this rate, predict the depth of snow at 9pm.

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9. Find the equation of the line perpendicular to $y = 2x + 5$ that goes through the point $(-1, 4)$.

10. Find the equation of the line that passes through $(7, -2)$ and $(-1, 4)$.

11. Simplify the expression and eliminate any negative exponents:

$$\frac{b^{-1}(bd)^2c}{(ab^{-1}d)^2a^{-2}ba^{-1}b}$$

12. Factor the expression below completely.

$$x^5 - 4x^3 - x^2 + 4$$

13. Suppose the function $f(x)$ is given. Describe how the graph of $g(x) = f(x) + 1$ is obtained from the graph of $f(x)$. Repeat for $h(x) = f(x - 1)$ and $k(x) = 3 * f(x)$.

14. Perform the indicated operations and simplify

$$\frac{6}{x} - \frac{7}{2x} + \frac{3}{xy}$$