

1. Find an equation of the line through (3, 2) and (5, -6). Write your answer in slope-intercept form.
2. Find an equation of the line through (0, 0) and (1/4, -1/5). Write your answer in standard form.

3. Find $f(3)$ when $f(x) = 3x^2 - 8x + 9$. Write your answer as an ordered pair.
4. Find $f(-3)$ when $f(x) = 2x^2 + 9x - 4$. Write your answer as an ordered pair.

5. Find the domain and range of the relation $\{(9, 3), (5, 3), (4, 2), (-8, 1)\}$. Write your answer in set-builder notation.
6. Find the domain for the function $f(x) = 3x - 7$. Write your answer in set-builder notation.
7. Find the domain for the function $f(x) = \frac{3x}{x-12}$. Write your answer in set-builder notation.

8. A rock is dropped from the top of a cliff. After 1 second, the rock is traveling 32 feet per second. After 3 seconds, the rock is traveling 90 feet per second. Use ordered pairs of the form (time since the rock was dropped, speed in feet per second).
 - a) Clearly define your variables.
 - b) Assume that the relationship between time and speed is linear and write an equation describing this relationship. Use ordered pairs of the form (time since the rock was dropped, speed in feet per second). Write your answer in slope intercept form.
 - c) Use this equation to predict the speed of the rock after 5 seconds. Write your answer in a complete sentence in the context of the problem.
 - d) Interpret the meaning of the slope of your line in the context of the problem.
 - e) Interpret the meaning of the ordered pair (4, 131) in the context of the problem.

9. Graph the linear function $2x + 3y = 6$ by finding the x and y intercepts and then write the equation in function notation and standard notation.
 - a) x-intercept:
 - b) y-intercept:
 - c) function notation:
 - d) Graph the function.
10. Find an equation of each line. Write the equation in function notation.
 - a) Through (3, 8); parallel to $f(x) = 4x - 2$
 - b) Through (-4, 8); perpendicular to $2x - 3y = 1$
 - c) Through (7, -4) and (2, 6)

11. Simplify

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|---|-------------------------------|--|
| a) $\sqrt[4]{48}$ | b) $\sqrt{\frac{x^{15}}{25}}$ | c) $19\sqrt[3]{2} - 3\sqrt[3]{54}$ |
| d) $-2\sqrt[3]{x^3y^7} + 5xy\sqrt[3]{8y^4}$ | e) $(\sqrt{x-4} + 4)^2$ | f) $\frac{\sqrt{1500x^9}}{\sqrt{10x^7}}$ |