

1. Simplify the following, assuming $x \neq 0$:

a. $(x^2)^7$

b. $x^2(x^3 - 3x) - 4x^5 + 9x^3$

c. $\frac{x^{15}}{x^3}$

d. $\sqrt[3]{x^{15}}$

e. $\frac{x^6 + 7x^3 - 5x^2}{x^2}$

f. $x^{-1} + x^{-5}$

2. A line L goes through the points $(-3, 7)$ and $(1, -5)$.

a. Find the slope of L .

b. Find the equation of L using the point-slope form.

c. Find the slope of a line perpendicular to L .

3. Simplify $\frac{5x^2 - 15x}{x^2 - 7x + 12}$.