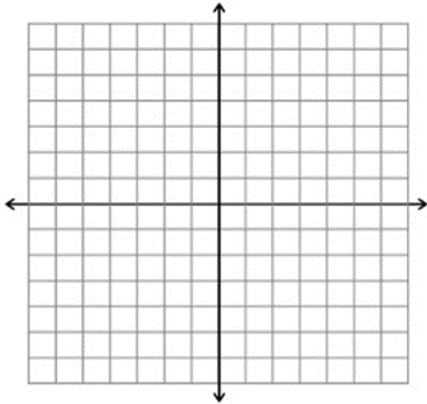Answer each question.

1. y varies directly with x. If y = -4 when x = 2, find y when x = -6.

2. y varies inversely with x. If y = 40 when x = 16, find x when y = -5.

3. y varies jointly with x and z. If y = 12 when x = 2 and z = 3, find z when y = 24 and x = 2.

4. The electric current I, is amperes, in a circuit varies directly as the voltage V. When 12 volts are applied, the current is 4 amperes. What is the current when 18 volts are applied?

5. The number of kilograms of water in a person's body varies directly as the person's mass. A person with a mass of 90 kg contains 60 kg of water. How many kilograms of water are in a person with a mass of 50 kg?

6. The volume V of gas varies inversely to the pressure P. The volume of a gas is 200 cm^3 under pressure of 32 kg/cm^2. What will be its volume under pressure of 40 kg/cm^2?

7. The time it takes to fly from Los Angeles to New York varies inversely as the speed of the plane. If the trip takes 6 hours at 900 km/h, how long would it take at 800 km/h?

8. The cost of pipe at Lowe's varies jointly as the length and diameter of the pipe. If 20 feet of 0.5 inch diameter pipe costs $36.60, then what is the cost of 12 feet of 0.75 inch diameter pipe?
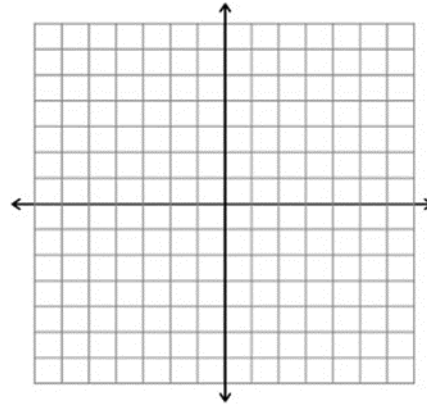
9. Disregarding wind resistance, the distance a body falls from rest varies directly as the square of the time it falls. If a skydiver falls 64 feet in 2 seconds, how far will he fall in 10 seconds?

10. The force of the wind blowing on a vertical surface varies jointly as the area of the surface and the square of the velocity. If a wind blowing at 50 mph exerts a force of 75 pounds on a surface of 500 ft², how much force will a wind of 75 mph place on a surface of 10 ft²?
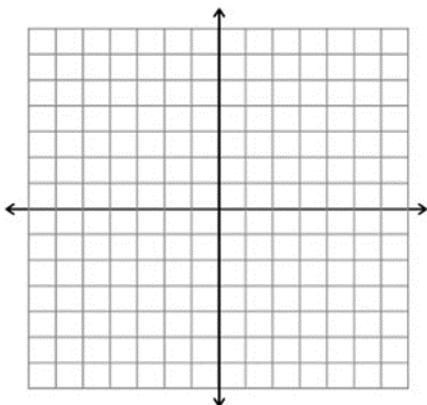
Graph each reciprocal function.

11. $f(x) = \dfrac{1}{x+2} - 3$

12. $y = -\dfrac{1}{x-5} + 1$

13. $f(x) = -\dfrac{1}{x} - 4$

14. $g(x) = \dfrac{1}{x+3}$