Power Functions Direct/Inverse Variation

Match each function rule to its corresponding graph, then write a sentence explaining the variation that relates x and y. *(Example: y = $\frac{6}{x^2}$: y varies inversely to the square of x with a constant variation of 6.)*

1) $y = 0.5x^2$ Graph: _____

2) $y = x^3$ Graph: _____

3) $y = 3\sqrt{x}$ Graph: _____

4) $y = \frac{5}{x^2}$ Graph: _____

5) $y = \frac{1}{x^3}$ Graph: _____

6) $y = \frac{1}{\sqrt{x}}$ Graph: _____

a)

b)

c)

d)

e)

f)

Answer the following direct/inverse variation problems.

Steps: **1. Plug in given values to the correct direct/inverse variation rule (make sure to include any exponents or radicals)**
2. Solve for k and re-write the new rule with the k value
3. Plug in the 2nd given value and solve to find the missing value

7) If *y* varies inversely as the square of *x* and *y* = 9 when *x* = 2, find *y* when *x* = 3

8) If *r* varies directly as the square of *t* and *r* = 4 when $t = \frac{1}{2}$ find *r* when $t = \frac{1}{4}$

9) If *y* varies inversely as the square root of *x* and *x* = 1.21 when *y* = 0.44, find *y* when *x* = 0.16

10) If *b* varies directly as the cube of *a* and *a* = 3 when *b* = 54, find *b* when *a* = 6.

11) If y varies directly as the square root of x and x = 9 when y = 48, find x when y = 16.

12) If y varies inversely as the cube of x and y = 8 when x = 1, find y when x = 2.