Here are some more to try. For each pair of points, compute the distance between them and then find an equation of the line through them.

10. $(\overset{x_1}{10}, \overset{y_1}{2})$ and $(\overset{x_2}{2}, \overset{y_2}{22})$

$$d = \sqrt{(y_2 - y_1)^2 + (x_2 - x_1)^2}$$

$$= \sqrt{(22-2)^2 + (2-10)^2}$$

$$= \sqrt{400 + 64}$$

$$= \sqrt{464}$$

$$\frac{4}{4} \cdot \frac{22}{1} + \frac{10}{4}$$

$$\frac{88}{4} + \frac{10}{4}$$

$$\frac{98}{4}$$

$$\text{slope } (m) = \frac{y_2 - y_1}{x_2 - x_1} = \frac{22-2}{2-10}$$

$$= \frac{20}{-8} = -\frac{5}{4}$$

$$y = mx + b$$

$$22 = \left(\frac{-5}{4}\right)\frac{2}{1} + b$$

$$22 = \frac{-10}{4} + b$$

$$+\frac{10}{4} \qquad +\frac{10}{4}$$

$$= b$$

$$y = \frac{-5}{4}x + \frac{98}{4}$$

12. $4x - 3y = -10$

$x = \frac{1}{4}y - 1$

$4\left(\frac{1}{4}y - 1\right) - 3y = -10$

$y - 4 - 3y = -10$

$-2y = -6$

$y = 3$

$x = \frac{1}{4}(3) - 1$

$x = \frac{3}{4} - \frac{1}{1} \cdot \frac{4}{4}$

$= \frac{3}{4} - \frac{4}{4} = -\frac{1}{4}$

12. $4x - 3y = -10$

$x = \frac{1}{4}y - 1$

$\frac{-1}{4}y \quad \frac{-1}{4}y$

$4x - 3y = -10 \xrightarrow{1} 4x - 3y = -10$

$x - \frac{1}{4}y = -1 \xrightarrow{\cdot -12} -12x + 3y = 12$

$+$

$\frac{-8x}{-8} = \frac{2}{-8}$

$x = -\frac{1}{4}$

x^{-5} $\quad m^0$ $\quad \sqrt[3]{y^1}$ $\quad \frac{1}{b^{-2}} = \frac{1}{\frac{1}{b^2}}$

$\frac{1}{x^5}$ $\quad 1$ $\quad y^{1/3}$ $\quad = \boxed{b^2}$

$\frac{1}{x^p} = x^{-p}$

$(\frac{1}{27})^{-1/3}$ $\quad \sqrt[5]{a^3}$

$\left(\frac{1}{3^3}\right)^{-1/3} = (3^{-3})^{-1/3} = \boxed{3^1}$ $\quad a^{3/5}$

ex. $\frac{1}{2^1} = 2^{-1}$

$\frac{1}{4} = \frac{1}{2^2} = 2^{-2}$

$\frac{1}{8} = \frac{1}{2^3} = 2^{-3}$

$\frac{1}{27} = \frac{1}{3^3} = 3^{-3}$

$h^8 s^{12} (\sqrt[8]{h})(s^{1/4})$

$h^8 s^{12} h^{1/8} s^{1/4}$

$h^8 h^{1/8} s^{12} s^{1/4}$

$h^{\frac{65}{8}} s^{\frac{49}{4}}$

$x^2 x^5 = x^{2+5} = x^7$

$x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x$

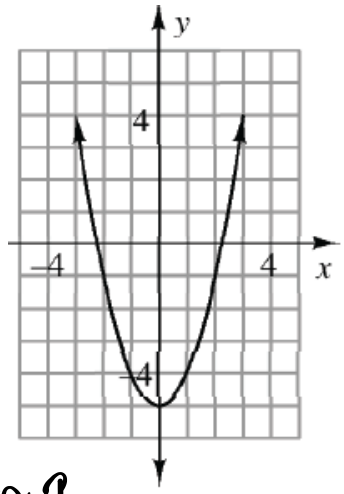
$(x^2)^5 = x^{2 \cdot 5} = x^{10}$

$x^{1/3} x^{1/2} = x^{\frac{1}{3}+\frac{1}{2}} = x^{5/6}$

$\frac{3}{3} \cdot \frac{1}{2} + \frac{1}{3} \cdot \frac{2}{2} = \frac{3}{6} + \frac{2}{6} = \frac{5}{6}$

$\frac{8}{8} \cdot \frac{8}{1} + \frac{1}{8} = \frac{64}{8} + \frac{1}{8} = \frac{65}{8}$

domain and range



D: $\mathbb{R}$

R: $y \geq -5$

If $g(x) = 5 - 3x^2$, calculate $g(-2)$ and $g(a+2)$.

$g(-2) = 5 - 3(-2)^2$

$= 5 - 3(4)$

$= 5 - 12$

$= -7$

$g(a+2) = 5 - 3(a+2)^2$

$= 5 - 3(a+2)(a+2)$

$= 5 - 3(a^2 + 2a + 2a + 4)$

$= 5 - 3(a^2 + 4a + 4)$

$= 5 - 3a^2 - 12a - 12$

$= \boxed{-3a^2 - 12a - 7}$

Factor each expression.

$x^2 + 5x - 24$

$2x^2 + 7x - 4$

$3x^2 - 13x + 4$

$5x^2 + 12x - 9$

$8x^2 + 24x + 10$

$f(x) = 2x^2 + 7x - 4$

$f(x) = 0$

$0 = 2x^2 + 7x - 4$