

6R

Radical & Rational Exponent Functions

Review

1. Rewrite the expression radical as a rational exponent and vice versa.

a. $2x^{\frac{3}{2}}$

b. $\sqrt[5]{2x}$

c. $9x^{-\frac{3}{2}}$

d. $5^{\frac{3}{4}}$

e. $\left(\frac{27}{8}\right)^{-\frac{2}{3}}$

2. Solve the Equation. Identify any extraneous solutions that arise from your method:

a. $x^{\frac{2}{3}} = 4$

b. $x^{-\frac{3}{2}} = 125$

c. $2x^{\frac{5}{4}} = 64$

d. $(4x)^{-\frac{2}{5}} = 16$

e. $\sqrt{x-10} + 4 = 0$

f. $\sqrt{2x+5} = 7$

g. $\sqrt{3-x} = 2 - \sqrt{x+1}$

h. $3 = x + \sqrt{2x-3}$

i. $3(x+1)^{\frac{3}{2}} + 4 = 28$

j. $(2x-7)^{\frac{1}{3}} = 3$

k. $(x+7)^{\frac{1}{2}} = x+1$

l. $(2x+3)^{\frac{1}{3}} = (4x)^{\frac{2}{3}}$

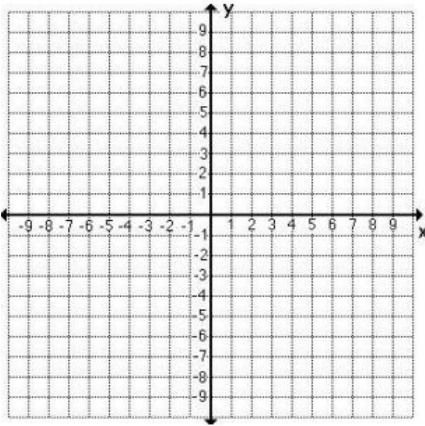
m. $(x^2 + 9x + 22)^{\frac{3}{2}} = 8$

n. $(x^2 + 5x + 5)^{\frac{5}{2}} + 1 = 0$

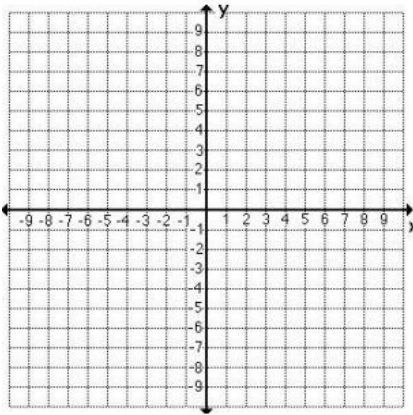
o. $\sqrt{2y+3} - \sqrt{y+1} = 1$

3. State the domain & range for the following functions, then graph:

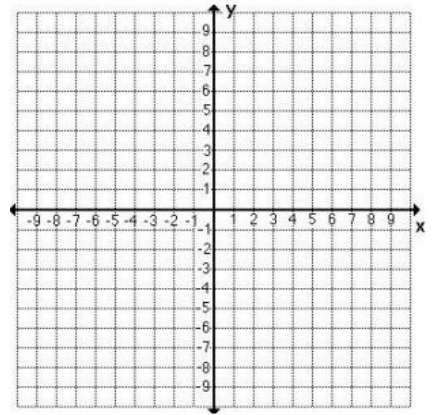
A) $f(x) = \sqrt{x+4} - 2$



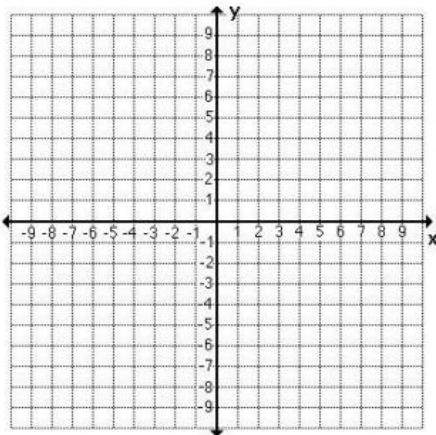
B) $f(x) = 2\sqrt{4-x} + 1$



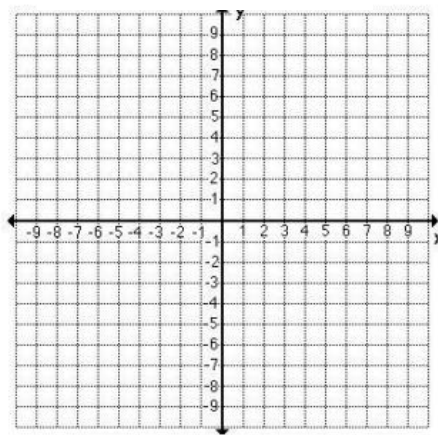
C) $f(x) = \sqrt{2x+3} + 1$



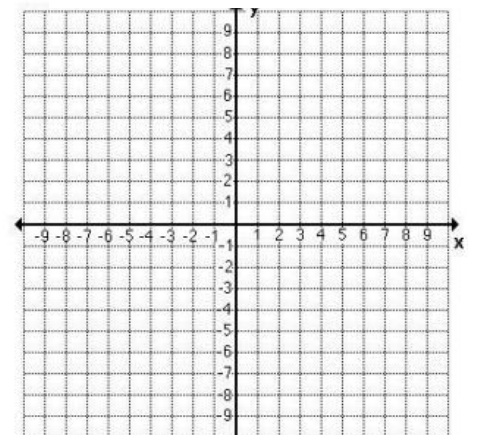
D) $f(x) = 2\sqrt{x} - 4$



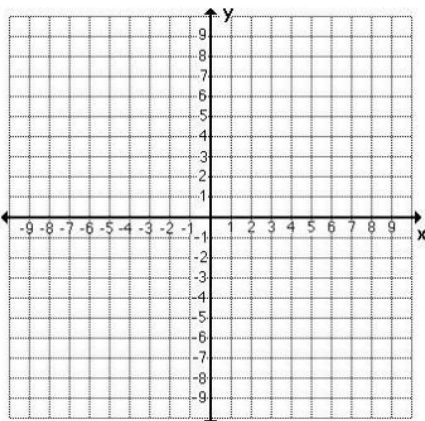
E) $f(x) = -\sqrt{-x}$



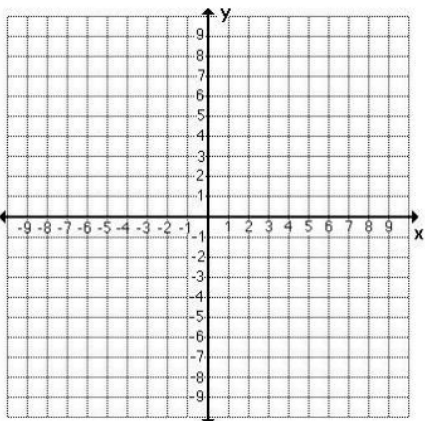
F) $f(x) = \sqrt[3]{x+2} + 3$



G) $f(x) = -\sqrt{x+5} - 8$



H) $f(x) = -\sqrt[3]{x-3} - 2$



I) $f(x) = 2\sqrt{x+7} - 5$

