INTERMEDIATE ALGEBRA

GPS # 34   7.4 RADICAL FUNCTIONS   NAME: *Parul Patel*
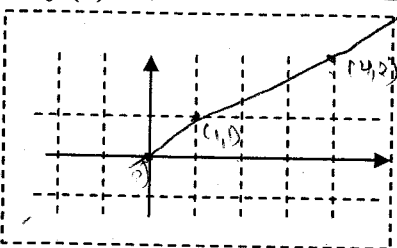
1. Graph each function. Give the domain and the range.

   a. $f(x) = \sqrt{x}$ $D: [0, \infty)$ $R: [0, \infty)$

   b. $f(x) = \sqrt{x-4}$ $D: [4, \infty)$ $R: [0, \infty)$

   moves side ways when constant inside of Root
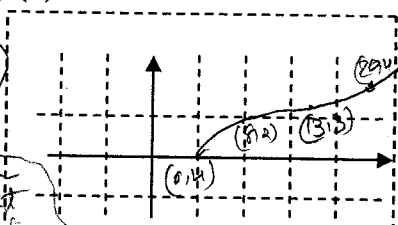
   moves up & down when constant outside Root

   c. $f(x) = \sqrt[3]{x}$ *include negative part.* $D: (-\infty, \infty)$ $R: (-\infty, \infty)$
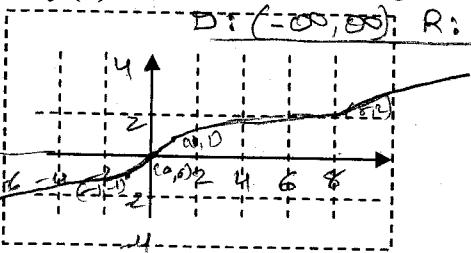
   d. $f(x) = \sqrt[3]{x} + 4$ $D: (-\infty, \infty)$ $R: (-\infty, \infty)$
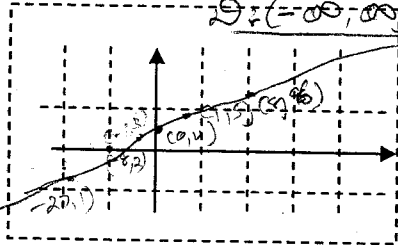
   goes up u point on y-axis

2. Use the square root property to solve each equation and give the solution set.

   a) $x^2 = 49$

   $x = \pm\sqrt{49}$

   $x = \pm 7$

   Sol. set $\{x | x = \pm 7\}$

   b) $x^2 - 8 = 0$

   $x^2 = 8$

   $x = \pm\sqrt{8}$

   $x = \pm 2\sqrt{2}$

   Sol set $= \{x | x = \pm 2\sqrt{2}\}$

   c) $(x-4)^2 = 25$

   $x - 4 = \pm\sqrt{25}$

   $x - 4 = \pm 5$

   $x - 4 = 5$ | $x - 4 = -5$

   $x = 9$ | $x = -1$

   Sol Set $\{x | x = 9 \text{ or } x = -1\}$

   d) $(2x-5)^2 = 12$

   $2x - 5 = \pm\sqrt{4 \cdot 3}$

   $2x - 5 = \pm 2\sqrt{3}$

   $2x - 5 = 2\sqrt{3}$ | $2x - 5 = -2\sqrt{3}$

   $2x = 5 + 2\sqrt{3}$ | $2x = 5 - 2\sqrt{3}$

   $x = \dfrac{5 + 2\sqrt{3}}{2}$ | $x = \dfrac{5 - 2\sqrt{3}}{2}$

   Sol set $\{x | x = \dfrac{5 \pm 2\sqrt{3}}{2}\}$

3. Use the cube roots to solve each equation and give the solution set.

   a) $x^3 = 125$

   $x = \sqrt[3]{125}$

   $x = \{x | x = 5\}$

   b) $\dfrac{3(y-1)^3}{3} = \dfrac{81}{3}$

   $y - 1 = \sqrt[3]{27}$

   $y - 1 = 3$

   $y = 4$ Sol set $\{x | x = 4\}$

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