

Quiz 7.6

1 (1 point) Evaluate the radical function at the indicated value.

$$H(z) = \sqrt[3]{z+4} \quad H(-12)$$

2 Determine the domain of the function (1 point), graph the function (2 points), and based on the graph, determine the range of the function (1 point).

$$G(x) = \sqrt{2-x}$$

3 Determine the domain of the function (1 point), graph the function using point plotting (2 points), and based on the graph, determine the range of the function (1 point).

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

Mar 8-9:12 AM

Mar 8-9:18 AM

You Try

$$\sqrt{3x+1} - 4 = 0$$

$$\begin{aligned} (\sqrt{3x+1})^2 &= 4^2 \\ 3x+1 &= 16 \\ x &= 5 \end{aligned}$$

Mar 8-9:26 AM

7.7 Radical Equations and Their Applications

Solve. Make sure to check for extraneous solutions

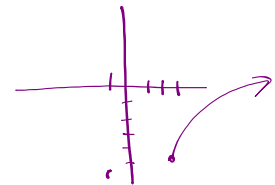
$$\sqrt{2x-3} - 5 = 0$$

$$2 \neq 0$$

$$(\sqrt{2x-3})^2 = 5^2$$

$$2x-3 = 25$$

$$x = 14$$



Solve

$$\sqrt{4x+1} - 2 = 1$$

$$\sqrt{5x-1} + 7 = 5$$

Mar 8-9:28 AM

You Try

$$\sqrt{2x+3} + 8 = 6$$

$$\sqrt{6x+4} - 5 = 3$$

Solve

$$ax^2 + bx + c = 0$$

$$(\sqrt{x+5})^2 = (x-1)^2 \Rightarrow 2 \neq -2$$

$$\begin{array}{r} x+5 = x^2 - 2x + 1 \\ -x - 5 \quad -x - 5 \\ \hline \end{array}$$

$$x^2 - 3x - 4 = 0$$

$$(x-4)(x+1) = 0$$

$$x-4=0 \quad x+1=0$$

$$x=4 \quad x=-1$$

$$x=4$$

$$\begin{array}{l} x=2 \\ x=-1 \\ x=-3 \end{array}$$

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Mar 8-9:31 AM

You Try

$$(\sqrt{2x+1})^2 = (x-1)^2$$

$$1 = -1$$

$$\begin{array}{r} 2x+1 = x^2 - 2x + 1 \\ -2x - 1 \quad -2x - 1 \\ \hline \end{array}$$

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

$$0 = x(x-4)$$

$$x=0 \quad x=4$$

Solve

$$\sqrt[3]{3x+2} - 1 = 1$$

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

$$3x+2 = 8$$

$$x=2$$

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Mar 8-9:33 AM

You Try

$$\sqrt[3]{6x+3} - 4 = -1$$

Mar 8-9:35 AM

Solve:

$$(5x-1)^{\frac{1}{2}} + 3 = 10$$

$$(5x-1)^{\frac{1}{2}} = 7$$

$$\sqrt{5x-1} = 7$$

$$5x-1 = 49$$

$$x = 10$$

Mar 8-9:35 AM

You Try

$$\sqrt[3]{2x-3} - 7 = -4$$

$$\sqrt[3]{2x-3} = 3$$

$$2x-3 = 27$$

$$x = 15$$

Mar 8-9:36 AM

Solve:

$$\sqrt[3]{p^2 - 4p - 4} = \sqrt[3]{-3p + 2}$$

$$p^2 - 4p - 4 = -3p + 2$$

$$p^2 - p - 6 = 0$$

$$(p-3)(p+2) = 0$$

$$p = 3, -2$$

Mar 8-9:37 AM

You Try

$$\sqrt[3]{m^2 + 4m + 4} = \sqrt[3]{2m + 7}$$

Mar 8-9:38 AM

Solve:

$$\sqrt{3x+6} - \sqrt{x+6} = 2$$

$$(\sqrt{3x+6})^2 = (2 + \sqrt{x+6})^2$$

$$\begin{array}{r} 3x+6 = 4 + 4\sqrt{x+6} + x+6 \\ -x-10 \quad -4 \quad -x-6 \end{array}$$

$$(2x-4)^2 = (4\sqrt{x+6})^2$$

$$4x^2 - 16x + 16 = 16(x+6)$$

$$\begin{array}{r} 4x^2 - 16x + 16 = 16x + 96 \\ -16x - 96 \quad -16x - 96 \end{array}$$

$$4x^2 - 32x - 80 = 0$$

$$4(x^2 - 8x - 20) = 0$$

$$4(x-10)(x+2) = 0$$

$$x=10 \quad x=-2$$

Mar 8-9:38 AM

You Try

$$\sqrt{2x+1} - \sqrt{x+4} = 1$$

$$(\sqrt{2x+1})^2 = (1 + \sqrt{x+4})^2$$

$$2x+1 = 1 + 2\sqrt{x+4} + x+4$$

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

$$\begin{array}{r} x^2 - 8x + 16 = 4x + 16 \\ -4x - 16 \quad -4x - 16 \end{array}$$

$$x^2 - 12x = 0$$

$$x(x-12) = 0$$

$$x = 12$$

Mar 8-9:42 AM

Solve for n

$$\frac{E}{z} = \frac{\sigma}{\sqrt{n}} \sqrt{n} \cdot \frac{E}{z} = \frac{\sigma}{\sqrt{n}} \sqrt{n}$$

$$\frac{E\sqrt{n}}{z} = \sigma z$$

$$E\sqrt{n} = \sigma z$$

$$\sqrt{n} = \frac{\sigma z}{E}$$

Find n when $\sigma = 12$, $z = 2$, and $E = 3$.

$$n = \left(\frac{\sigma z}{E}\right)^2$$

$$n = 64$$

Mar 8-9:42 AM

7.7 #45)

$$(\sqrt{3w+4})^2 = (2 + \sqrt{w})^2$$

$$\begin{array}{ccccccc} 3w+4 & = & 4 & + & 4\sqrt{w} & + & w \\ -w & -4 & -4 & & & & -w \end{array}$$

$$(2w)^2 = (4\sqrt{w})^2$$

$$4w^2 = 16w$$