

Quiz Study Guide

Adv. Algebra 2

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Name _____

Solving Square/Cube Roots and Graphing Cube Roots

Solve each equation. Remember to check for extraneous solutions.

$$1) (\sqrt{21-4k})^2 = (k)^2$$

$$21-4k = k^2$$

$$-21 + 4k \quad +4k - 21$$

$$0 = k^2 + 4k - 21$$

$$0 = (k+7)(k-3)$$

~~-7~~ +3

$$3) n = \sqrt[3]{125}$$

$$n = 5$$

$$5) (p)^2 = (\sqrt{6-p})^2$$

$$p^2 = 6-p$$

$$+p \quad -6+p$$

$$-6$$

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

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

~~-3~~ -2

$$7) (3p-11)^2 = (p-3)^2$$

$$3p-11 = p^2 - 6p + 9$$

$$-3p + 11 \quad -3p + 11$$

$$0 = p^2 - 9p + 20$$

$$0 = (p-4)(p-5)$$

$$p = 4, 5$$

$$2) (2-n)^2 = (n)^2$$

$$2-n = n^2 + n - 2$$

$$-2+n$$

$$0 = n^2 + n - 2$$

$$0 = (n+2)(n-1)$$

~~-2~~ -1

$$4) (\sqrt{4b-24})^2 = (b-6)^2$$

$$4b-24 = b^2 - 12b + 36$$

$$-4b + 24 \quad -4b + 24$$

$$0 = b^2 - 16b + 60$$

$$0 = (b-6)(b-10)$$

b = 6, 10

$$6) (x+1)^3 = (3x+1)^3$$

$$(x^2 + 2x + 1)(x+1)$$

$$x^3 + 2x^2 + x + x^2 + 2x + 1$$

$$x^3 + 3x^2 + 3x + 1 = 3x^3 + 3x^2 + 3x + 1$$

$$x + 3x^2 = 0$$

$$x^2(x+3) = 0$$

x = -3, 0

$$8) (k-1)^3 = (-3k^2 + 3k)^3$$

$$(k^2 - 2k + 1)(k-1)$$

$$k^3 - 2k^2 + k - k^2 + 2k - 1$$

$$k^3 - 3k^2 + 3k - 1 = -3k^2 + 3k + 3k^2 - 3k$$

$$k^3 - 1 = 0$$

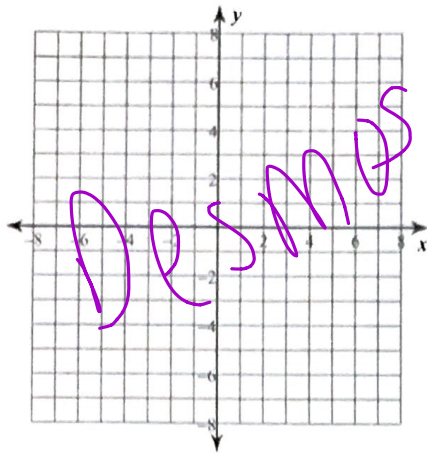
$$\sqrt[3]{k^3} = \sqrt[3]{1}$$

k = 1

Use a table to sketch the graph of the first function. After that use what you know about translations of functions to graph the other 3. State the point of inflection and then sketch the graph.

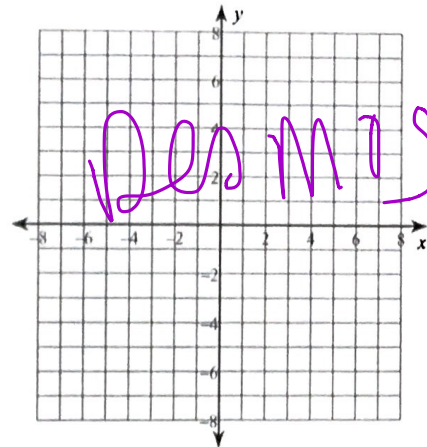
9) $y = \sqrt[3]{x}$

Shifts: N/A



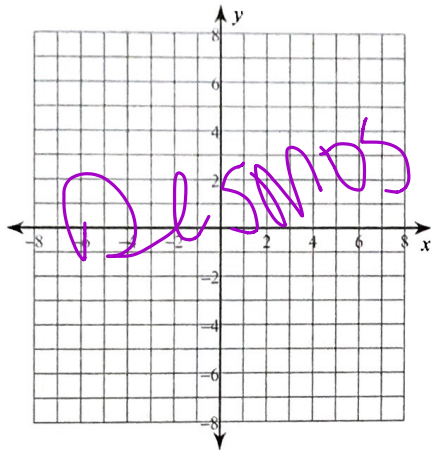
10) $y = \sqrt[3]{x+3} - 3$

Shifts: Left 3
Down 3



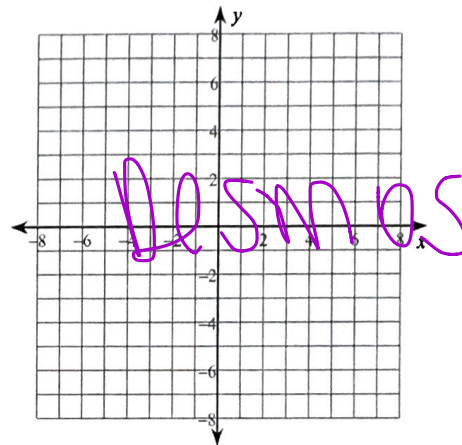
11) $y = 3 + \sqrt[3]{x+2}$

Shifts: Left 2
Up 3



12) $y = -\sqrt[3]{x+1}$

Shifts: Left 1
Reflect x-axis



- 13) Write a summary of what you know about transformations of functions (quadratic, cubic, square root and cube root). Make sure to include vertical and horizontal shifts, stretches and skews, and reflections over the x axis. Use complete sentences and correct punctuation. This will be graded and returned if not completed to my satisfactory.

Also rework page 1 and 2 in the notes