$\sqrt[3]{120} = \sqrt[3]{2 \cdot 2 \cdot 2 \cdot 3 \cdot 5} = 2\sqrt[3]{15}$

$\sqrt[3]{2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 \cdot 3 \cdot 3 \cdot 7 \cdot 7 \cdot 11 \cdot 11 \cdot 11}$

$2 \cdot 3 \cdot 11 \sqrt[3]{2 \cdot 2 \cdot 7 \cdot 7}$

$66\sqrt[3]{196}$

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

Shape:

$4 - x = 0$

$4 = x$

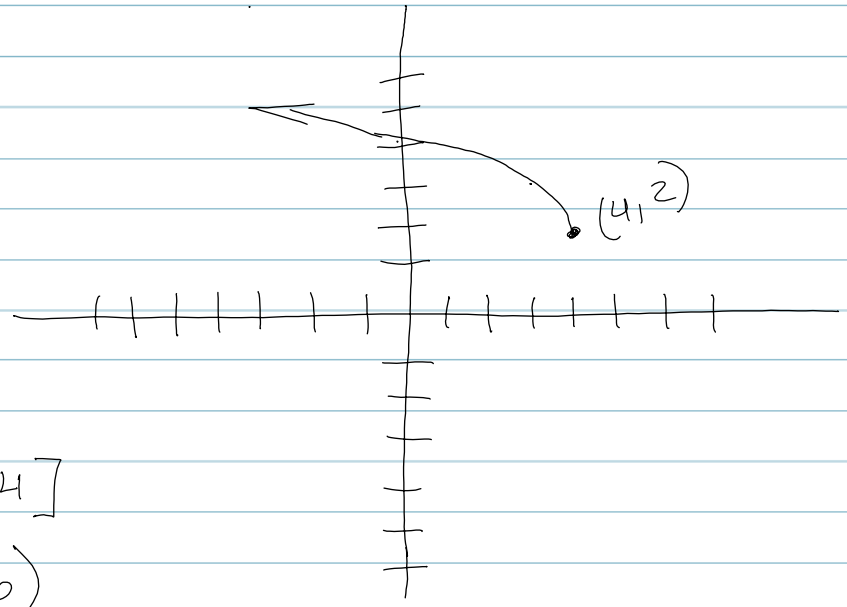
$(h, k) = (4, 2)$

$a = \underline{1}$ + UP

1 neutral

$-x$ Open to the left

x	y
0	4
3	3
4	2
5	not real



D: $(-\infty, 4]$

R: $[2, \infty)$

October 22, 2012

Section 7.3

Simplifying Radicals

$\sqrt{240x^3y^4z^5} = \sqrt{2\cdot2\cdot2\cdot2\cdot3\cdot5\cdot x\cdot x\cdot x\cdot y\cdot y\cdot y\cdot y\cdot z\cdot z\cdot z\cdot z\cdot z}$

$= 2\cdot2\cdot x\cdot y\cdot y\cdot z\cdot z\sqrt{3\cdot5\cdot x\cdot z}$

$= 4xy^2z^2\sqrt{15xz}$ 11

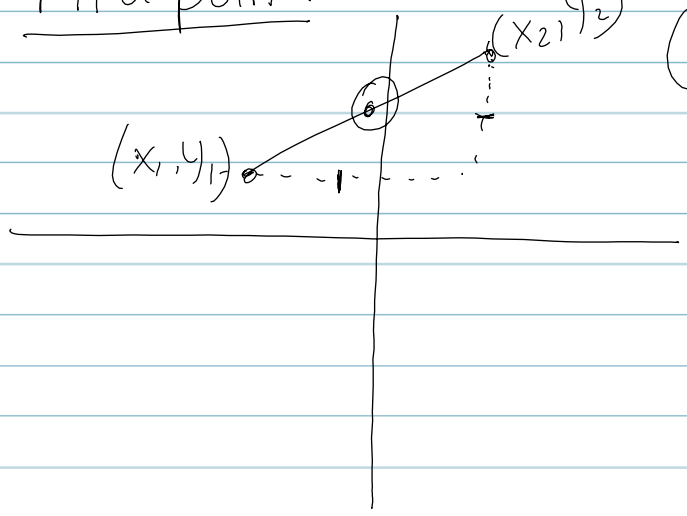
2 | 240
2 | 120
2 | 60
2 | 30
3 | 15
5

$\sqrt[3]{240x^3y^4z^5} = \sqrt[3]{2\cdot2\cdot2\cdot2\cdot3\cdot5\cdot x\cdot x\cdot x\cdot y\cdot y\cdot y\cdot y\cdot z\cdot z\cdot z\cdot z\cdot z}$

$= 2xyz\sqrt[3]{30yz^2}$ ✓

$\sqrt[3]{x^{12}y^{86}z^{34}} = x^4y^{28}z^{11}\sqrt[3]{y^2z}$

Midpoint



$(x_m, y_m) = \left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$

$(4,7)$
$(-3,8)$ $\left(\frac{4-3}{2}, \frac{7+8}{2}\right)$

$\left(\frac{1}{2}, \frac{15}{2}\right)$

$(-4, 9)$

$(6, -2)$

$\left(\frac{-4+6}{2}, \frac{9-2}{2}\right)$

$\left(\frac{2}{2}, \frac{7}{2}\right)$

$(1, 3.5)$

October 24, 2012

problems 7.1

(89)

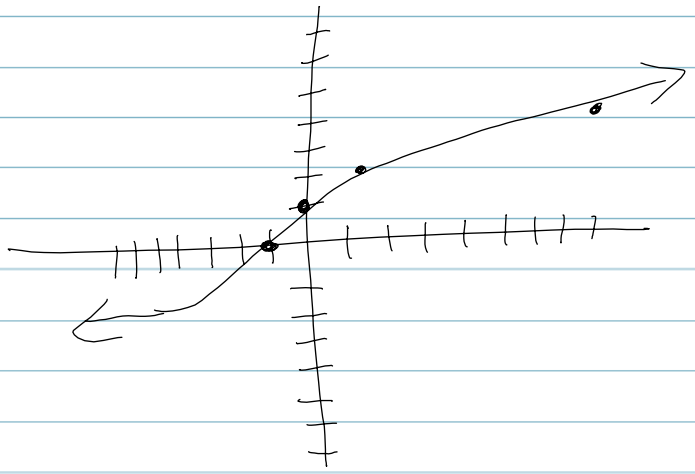
$\sqrt[3]{x}$ basic shape

$f(x) = \sqrt[3]{x-h} + k$

$f(x) = \sqrt[3]{x+1}$

$(0, 1)$

x	y
-1	0
0	1
1	2
8	3

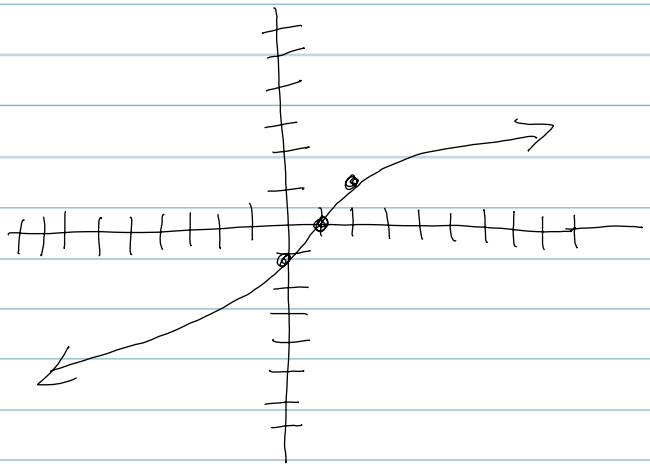


(91)

$\sqrt[3]{x-1}$

$(h,k) = (1,0)$

x	y
0	-1
1	0
2	1



Section 7.3

Multiplying

$\sqrt{14x^2y^3} \cdot \sqrt{6x^3y^5} = \sqrt{84x^5y^8}$

$2 \cdot 7 \qquad 2 \cdot 3$

$14 \times 6 = 84$

$= \sqrt{2 \cdot 2 \cdot 3 \cdot 7 \, x^5 y^8}$

$= 2x^2y^4\sqrt{21x}$

$(2\sqrt{3} + 3\sqrt{5})(4\sqrt{3} - 5\sqrt{5})$

FOIL

$(2\sqrt{3})(4\sqrt{3}) + (2\sqrt{3})(-5\sqrt{5}) + (3\sqrt{5})(4\sqrt{3}) + (3\sqrt{5})(-5\sqrt{5})$

$8(3) - 10\sqrt{15} + 12\sqrt{15} - 15(5)$

$24 - 2\sqrt{15} - 75$

$-51 + 2\sqrt{15}$

$\boxed{-51 + 2\sqrt{15}}$

Section 7.4

Division (Rationalizing)

$\frac{3}{\sqrt{2}} = \frac{3}{1.41.....}$

$1.41.....\overline{)3}$

$\frac{3}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \boxed{\frac{3\sqrt{2}}{2}}$ ✓

Fix the Denominator!

$3(1.41.....)$

$= 4.23.....$

2.11

$2\overline{)4.23.....}$

4

2

2

3

2.0