

Roots

$$\sqrt{25} = 5$$

$$x^3 \sqrt[3]{8} = 2$$

↑
radicand

$$\sqrt[5]{243} = 3$$

$$\sqrt{-16} = 4i$$

$$\sqrt[3]{-8} = -2$$

-2 · -2 · -2

$$\sqrt{24} = \sqrt{4 \cdot 6}$$

$$= 2\sqrt{6}$$

$$\sqrt[3]{40} = \sqrt[3]{8 \cdot 5}$$

$$= 2\sqrt[3]{5}$$

$$\sqrt[4]{162} = \sqrt[4]{81 \cdot 2}$$

$$= 3\sqrt[4]{2}$$

	16
3 --	-61
	296

x^3
 $\frac{1}{8}$
 $\frac{27}{64}$
 $x^{\frac{7}{8}}$

$$\sqrt[2]{a^2} = |a|$$

$$\sqrt[2]{a^4} = a^2$$

$$a^2 \cdot a^2$$

$$\sqrt[3]{a^6} = |a^3|$$

$$a^3 \cdot a^3$$

Use abs value if \Rightarrow Even-index Even-power inside root Odd-power outside root

$$\sqrt[4]{a^8 b^{28} c^{100}} = a^2 |b^7 c^{25}|$$

$$\sqrt{x^2 + 8x + 16} = \sqrt{(x+4)(x+4)}$$

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

$$\sqrt[3]{x^7} = \sqrt[3]{x^6 \cdot x^1}$$

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

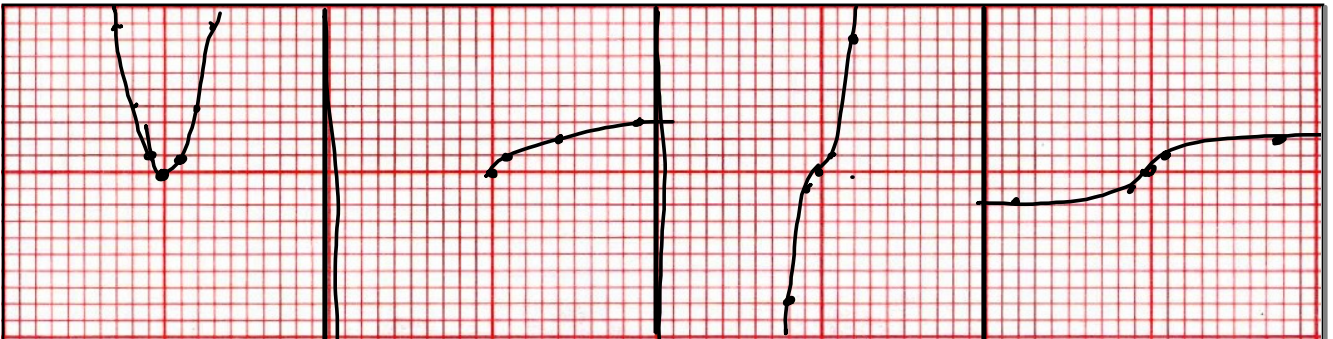
$2 \overline{) 7}$
 $\underline{-6}$
 1

$$\sqrt[6]{p^{32} q^{56} r^{39}}$$

$$= \sqrt[6]{p^2 q^2 r^3}$$

$$= \sqrt[4]{x^6} \cdot \sqrt[4]{x^3 y^4}$$

$$= \sqrt[4]{x^4 y^{10}} = x^1 y^2 \sqrt[4]{y^2}$$



$y = x^2$

0	0
1	1
2	4
3	9

$y = \sqrt{x}$ Root Right

0	0
1	1
4	2
9	3

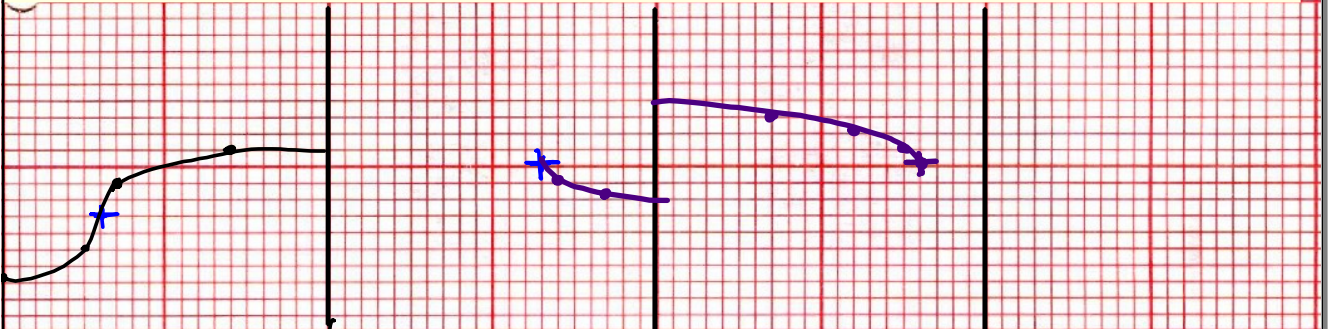
$y = x^3$

0	0
1	1
2	8
-1	-1
-2	-8

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

Squiggly Squarabola

0	0
1	1
8	2



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

Left 4 Down 3

0	0
1	1
8	2

$y = -\sqrt{x-3}$

Right 3

$-f(x)$ flip over x-axis

x	y
0	0
1	1
4	2
9	3

$y = \sqrt{6-x}$

$y = \sqrt{-(x-6)}$

Right 6

0	0
1	1
4	2
9	3

$f(-x)$

$y = \sqrt{-x}$

flip over y-axis

\sqrt{x}