43) $f(x) = 3x^{\frac{1}{4}}$

$k = 3$ QI

$a = \frac{1}{4}$

$x^{\frac{1}{4}}$ $x^{\frac{1}{2}}$

$\sqrt[4]{x}$ $\sqrt{x}$

$3\sqrt[4]{x^1}$

$3\sqrt[4]{(-x)}$

undefined

can't have a negative # inside an even radical

44) $f(x) = -2x^{\frac{2}{3}}$

$k = -2$ QIII

$a = \frac{2}{3}$

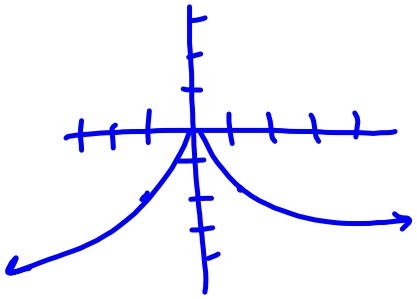
$\sqrt[3]{a^2}$

point $(1, -2)$

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

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

even y-axis



47) $f(x) = \frac{1}{2}x^{-3} = \frac{1}{2x^3}$

$f(-x) = \frac{1}{2(-x)^3}$

$= \frac{1}{-2x3} = -\left(\frac{1}{2x^3}\right) = -\left(\frac{1}{2}x^{-3}\right) = -f(x)$ odd origin

Table 2.10 Average Distances and Orbit Periods for the Six Innermost Planets

Planet	Average Distance from Sun (Gm)	Period of Orbit (days)
Mercury	57.9	88
Venus	108.2	225
Earth	149.6	365.2
Mars	227.9	687
Jupiter	778.3	4332
Saturn	1427	10,760

Source: Shupe, Dorr, Payne, Hunsiker, et al., National Geographic Atlas of the World (rev. 6th ed.). Washington, DC: National Geographic Society, 1992, plate 116.

1) $f(x) = 0.2x^{1.5}$ choose r^2 closest 1

2) Predict orbital days for Neptune 4497 Gm (x-value)

Gm = gigameters

$f(x) = 0.2(4497)^{1.5}$

$f(x) = 60,313.5$ orbital days

Table 2.11 Rubber Ball Data from CBR™ Experiment

Distance (m)	Speed (m/s)
0.00000	0.00000
0.04298	0.82372
0.16119	1.71163
0.35148	2.45860
0.59394	3.05209
0.89187	3.74200
1.25557	4.49558

$f(x) = 4.03x^{0.5}$

Predict when $x = 1.85$ m

Ans: 5.5 m/s

Do p197 # 49, 50, 55, 57