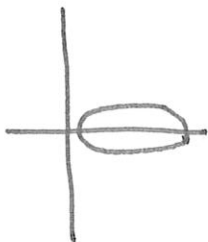

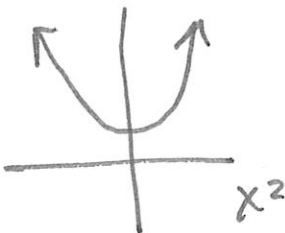
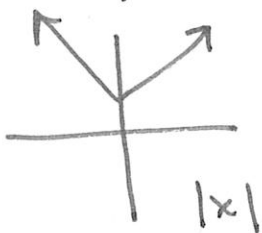
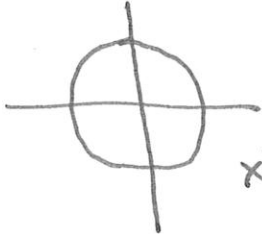
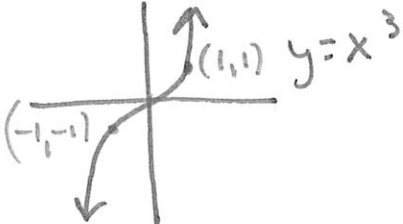


2.7

①

Tests for Symmetry

	Symmetric about X-axis	Symmetric about y-axis [Even]	Symmetric about origin [Odd]
Equation unchanged if	y replaced with -y	x replaced with -x	x is replaced with -x and y is replaced with -y
	  $x = y^2$	 x^2  $ x $	 $x^2 + y^2 = 1$  $y = x^3$

Ex3] Test for symmetry wrt x-axis and y-axis

a) $y = x^2 + 4$

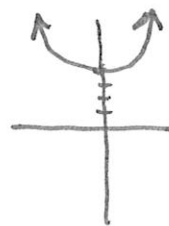
replace x with -x

$$y = (-x)^2 + 4$$

$$y = x^2 + 4$$

replace y with -y

about symmetric wrt y-axis "with respect to"



$y = x^2 + 4$
 $-y = x^2 + 4$
 $y = -x^2 + 4$

Not Same
not symmetric wrt x-axis

Class work.

2

2.7

#45

$$y = x^2 + 5$$

x-axis

$$y \rightarrow -y$$

$$-y = x^2 + 5$$

$$y = -x^2 - 5 \quad \text{NO}$$

y-axis

$$x \rightarrow -x$$

$$y = x^2 + 5$$

$$y = (-x)^2 + 5$$

$$y = x^2 + 5 \quad \text{YES}$$

Origin

$$y \rightarrow -y$$

$$x \rightarrow -x$$

$$y = x^2 + 5$$

$$-y = (-x)^2 + 5$$

$$-y = x^2 + 5$$

$$y = -x^2 - 5 \quad \text{NO}$$

#49

$$y = -4x^3 + x$$

x-axis

$$y \rightarrow -y$$

$$-y = -4x^3 + x$$

$$y = 4x^3 - x \quad \text{NO x-axis}$$

y-axis

$$x \rightarrow -x$$

$$y = -4x^3 + x$$

$$y = -4(-x)^3 + (-x)$$

$$y = +4x^3 - x \quad \text{NO y-axis}$$

origin

$$x \rightarrow -x$$

$$y \rightarrow -y$$

$$+y = -4x^3 + x$$

$$-y = -4(-x)^3 + (-x)$$

$$y = -4x^3 + x \quad \text{YES origin}$$

