

pg 146 - 147

42. $DQ = -2x - h$

96. none

44. $DQ = -1/2$

98. $b \rightarrow -5$

46. $DQ = 10x + 5h + 4$

100. $c \& g \rightarrow 2/3$

50. $3x^2 + 3xh + h^2 - 2$

102. $a \& f$

71. $f(g(x)) = |x| \rightarrow D: \{x | x \in \mathbb{R}\}$

$g(f(x)) = x \rightarrow D: \{x | x \geq -5\}$

Sep 8-9:09 PM

42) $f(x) = 2 - x^2$

$$\begin{aligned} f(x+h) &= 2 - (x+h)^2 \\ &= 2 - [x^2 + 2xh + h^2] \\ &= 2 - x^2 - 2xh - h^2 \end{aligned}$$

$$DQ = \frac{f(x+h) - f(x)}{h}$$

$$\begin{aligned} &= \frac{\cancel{2} - \cancel{x^2} - 2xh - h^2 - \cancel{2} + \cancel{x^2}}{h} \\ &= -2x - h \end{aligned}$$

$$\text{So } f(x) = \underline{x^3 - 2x}$$

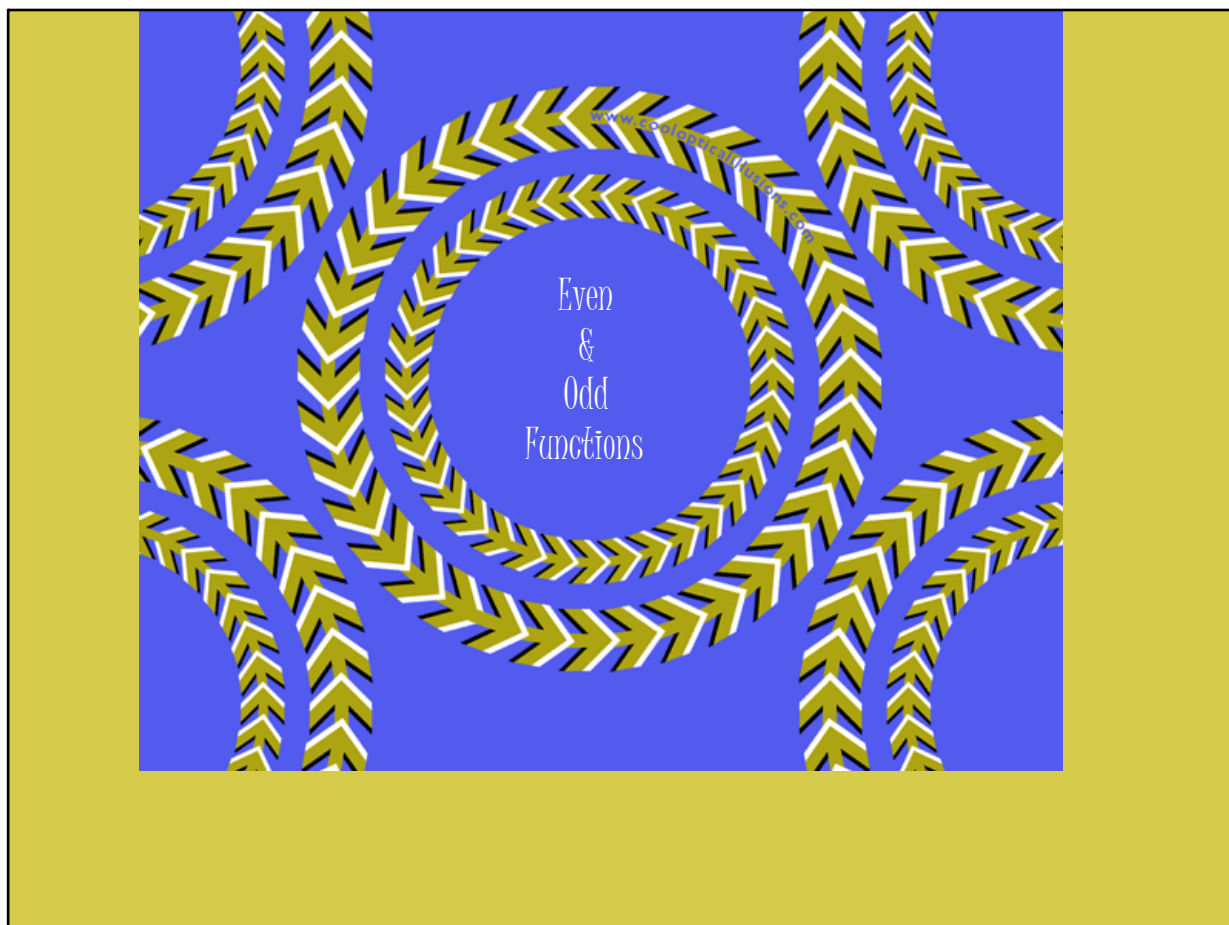
$$\begin{aligned} f(x+h) &= (x+h)^3 - 2(x+h) \\ &= \underline{x^3 + 3x^2h + 3xh^2 + h^3} \\ &\quad \underline{- 2x - 2h} \end{aligned}$$

$$\begin{aligned} &\frac{(x+h)(x+h)(x+h)}{(x^2+2xh+h^2)(x+h)} \\ &= x^3 + \underline{2x^2h} + \underline{xh^2} \\ &\quad + \underline{x^2h} + \underline{2xh^2} + h^3 \end{aligned}$$

$$DQ = \frac{\cancel{x^3} + \underline{3x^2h} + \underline{3xh^2} + \underline{h^3} - \cancel{2x} - \underline{2h} - \cancel{x^3} + \underline{2x}}{h}$$

$$DQ = 3x^2 + 3xh + h^2 - 2$$

Oct 5-7:42 AM



Sep 8-4:33 PM

Warm-Up: Find the DQ.

1. $f(x) = 2x^2 - 3x$

DQ = $4x + 2h - 3$

2. $F(x) = 6x^3 - 2x$

DQ = $18x^2 + 18xh + 6h^2 - 2$

Sep 23-10:11 AM

Find DQ of the following:

1. $f(x) = 2x^2 - 3x$

2. $f(x) = 6x^3 - 2x$

① $f(x+h) = 6(x+h)^3 - 2(x+h)$

$= 6(x^3 + 3x^2h + 3xh^2 + h^3) - 2x - 2h$

$= 6x^3 + 18x^2h + 18xh^2 + 6h^3 - 2x - 2h$

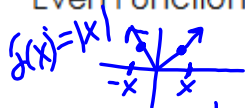
② $DQ = \frac{6x^3 + 18x^2h + 18xh^2 + 6h^3 - 2x - 2h - 6x^3 + 2x}{h}$

$= \frac{18x^2h + 18xh^2 + 6h^3 - 2h}{h}$

$= 18x^2 + 18xh + 6h^2 - 2$

Aug 26-8:21 PM

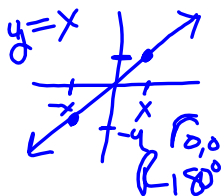
Even Functions: Graph: Symmetrical with respect to the y-axis



Rule: $f(x) = f(-x)$

y's are the same.

Odd Functions: Graph: Symmetrical w/ respect to the origin.



Rule: $f(-x) = -f(x)$

Sep 23-10:13 AM

Determine by definition if the function is even, odd or neither.

1. $f(x) = \frac{6}{x}$

① even?

$f(-x) = \frac{6}{-x} \neq f(x)$
not even

② odd? $-f(x) = -\frac{6}{x}$

③ $f(-x) \neq -f(x) \rightarrow$ odd

$\frac{1}{2} = \frac{-1}{2} = -\frac{1}{2}$



2. $f(x) = |x| + 1$
① $f(-x) = |-x| + 1 = x + 1 = f(x)$

even



Sep 23-10:12 AM

3. $6x + 5y = 0$

$$\textcircled{1} \quad 5y = -6x$$

$$f(x) = y = -\frac{6}{5}x$$

even?

$$f(-x) = -\frac{6}{5}(-x)$$

$$= \frac{6x}{5}$$

$$f(x) \neq f(-x)$$

not even

$\textcircled{2}$ odd:

$$-f(x) = -\left(-\frac{6}{5}x\right)$$

$$= \frac{6}{5}x$$

$$\rightarrow f(x) = f(-x)$$

odd



4. $f(x) = x^3 - 2x$

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

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

$$= -x^3 + 2x$$

$$f(-x) \neq f(x)$$

not even

$$\textcircled{2} \quad -f(x) = -(x^3 - 2x)$$

$$= -x^3 + 2x$$

$$-f(x) = f(-x) \rightarrow \text{odd}$$



Sep 23-10:12 AM

5. $f(x) = x^2 + 3x - 1$

$$\textcircled{1} \quad f(-x) = (-x)^2 + 3(-x) - 1$$

$$= x^2 - 3x - 1 \neq f(x)$$

not even

$$\textcircled{2} \quad -f(x) = -x^2 - 3x + 1$$

$$-f(x) \neq f(-x)$$

not odd



6. $f(x) = x^4 - 7x^2$

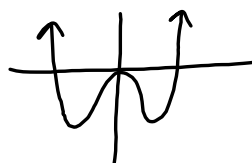
$$\textcircled{1} \quad f(x) = x^4 - 7x^2$$

$$\textcircled{1} \quad f(-x) = (-x)^4 - 7(-x)^2$$

$$= x^4 - 7x^2$$

$$f(-x) = f(x)$$

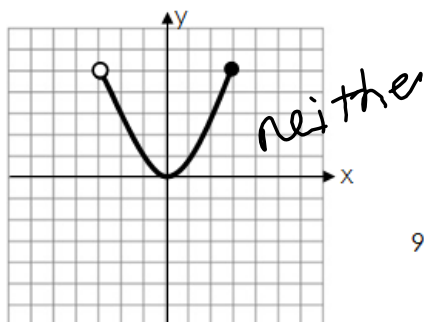
$\rightarrow$ even



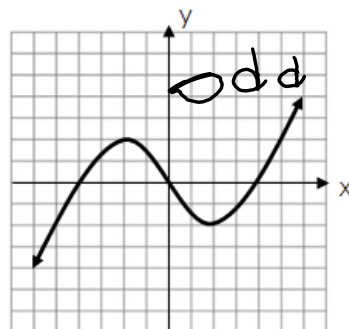
Sep 23-10:12 AM

Determine visually whether the function is even, odd or neither.

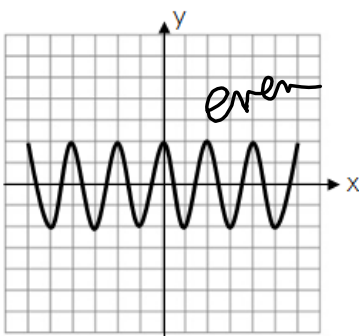
7.



9.



8.



Sep 23-10:12 AM

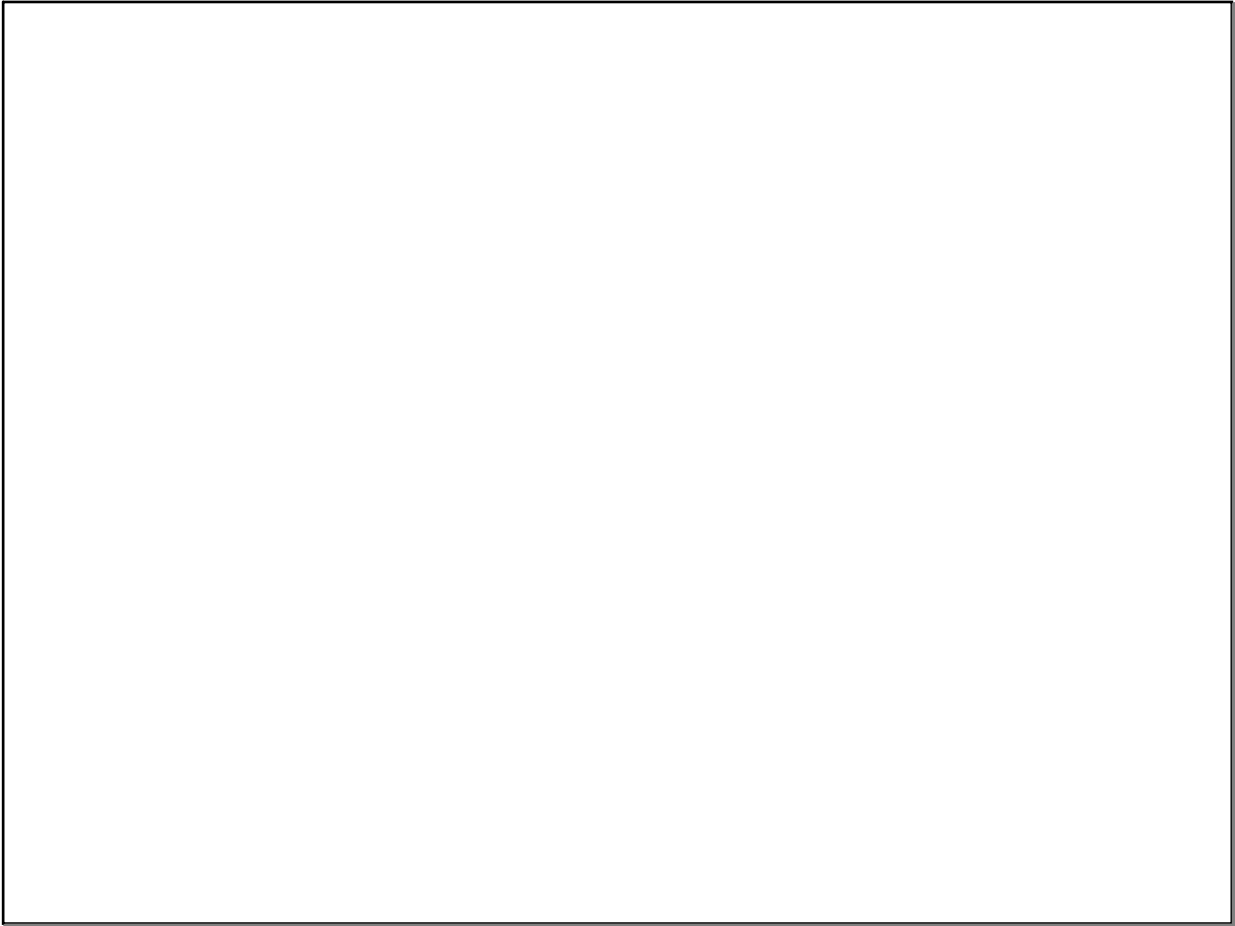
HW# 1 - 13

pg 164 - 166:

33-42, 45, 46

Ch1 Ditto 2: 9&10

Sep 12-10:31 AM



Aug 22-10:08 AM