

Homework Questions?

6e
9a
16bcd.

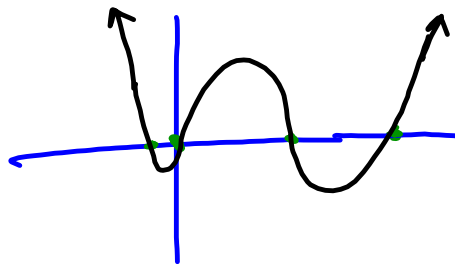
6e) $y = x(2x+1)(x-3)(x-5)$

$$2x+1=0$$

$$2x=-1$$

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

zeros	0	$-\frac{1}{2}$	3	5
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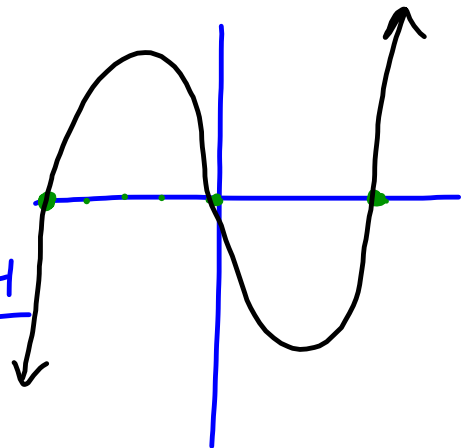
9a)

$$y = 3x^3 - 48x$$

$$= 3x(x^2 - 16)$$

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

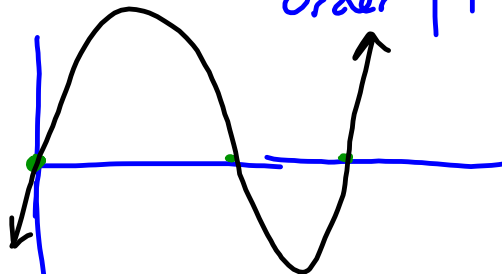
zero	0	+4	-4
order	1	1	1



16c) $V(x) = x(30-2x)(20-2x)$

$V(x) > 0$

zeros	0	10	15
order	1	1	1



$x \in (0, 10)$
 $x > 15$

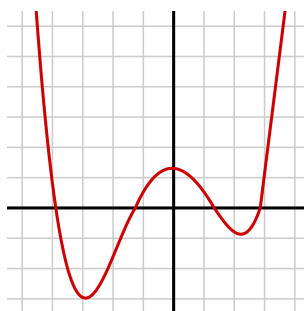
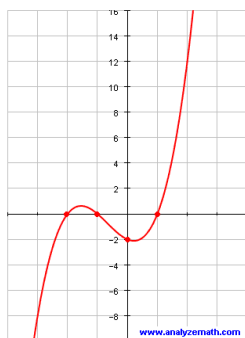
$\{x \in \mathbb{R} \mid 0 < x < 10\}$
and $x > 15$

Lesson 3.04 - Transformation of Cubic and Quartic Functions



Learning Goals:

- I can describe and perform transformations on the parent functions $y=x^3$ and $y=x^4$



We already know all this...

$$f(x) = a(k(x-d))^3 + c \text{ and } f(x) = a(k(x-d))^4 + c$$

- a – a vertical stretch, compression, and/or reflection in the x-axis
 – if , then stretch, if , then compression
 – if , then reflection in the x-axis
- k – a horizontal stretch, compression, and/or reflection in the y-axis
 – if , then stretch, if , then compression
 – if , then reflection in the x-axis
- d – a horizontal shift
- c – a vertical shift

Example:

Graph the following on the same grid

1. $y = x^3$

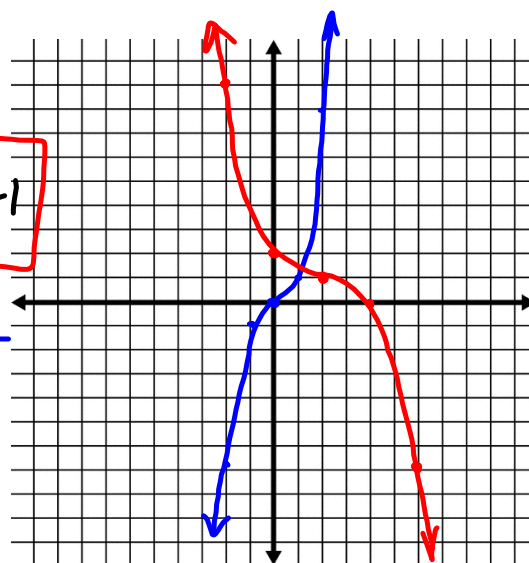
2. $y = -\left(\frac{1}{2}x - 1\right)^3 + 1$

$$= -\left(\frac{1}{2}(x-2)\right)^3 + 1$$

x	y
-2	-8
-1	-1
0	0
1	1
2	8

→

x	y
-2	9
1	2
2	1
4	0
6	-7



$$\begin{aligned}
 y &= -\left(\frac{1}{2}(x-2)\right)^3 + 1 \\
 &= -\left(\frac{1}{2}\right)^3 (x-2)^3 + 1 \\
 &= -\frac{1}{8} (x-2)^3 + 1
 \end{aligned}$$

Homework:

pg. 155-158

#1, 2*, 3ab, 4bd, 5a, 6ab, 8, 9af (for #9 see Ex. 2 on p. 153), 10, 14

*2e has an incorrect answer in the back: change "left" to "right"

*2f has an incorrect answer: ...horizontal translation 35 units left...

