

Questions on homework?

Did §2.3 "A" in class. I missed the horizontal flip in my solutions.

Doing it all with parabolas.

Write $g(x) = x^2 + 4x - 11$ in the form $a(x-h)^2 + k$. Graph it. Show transformations. Track 3 points from start to finish.

Same for $h(x) = 5x^2 - 3x + 7$

$$ax^2 + bx + c = a(x-h)^2 + k$$

$$h = -\frac{b}{2a}, \quad k = f\left(-\frac{b}{2a}\right)$$

$$7x^2 - 9x + 11 = 7\left(x - \left(\frac{9}{14}\right)\right) +$$

$$a=7, b=-9, c=11$$

$$-\frac{b}{2a} = \frac{9}{14}$$

$$7\left(\frac{9}{14}\right)^2 - 9\left(\frac{9}{14}\right) + 11$$

$$= 7\left(\frac{81}{196}\right) - \frac{81}{14} + 11$$

$$= \frac{81}{28} - \frac{81}{14} \cdot \frac{2}{2} + \frac{28}{28} \cdot \frac{11}{1}$$

$$= \frac{-81 + 308}{28} = \frac{227}{28}$$

$$\frac{28}{28} \cdot \frac{11}{1}$$

$$2 \cdot 2 \cdot 7$$

$$a(x-h)^2 + k$$

$$(h, k) = \text{vertex}$$

$$\left(-\frac{b}{2a}, f\left(-\frac{b}{2a}\right)\right) = (h, f(h))$$

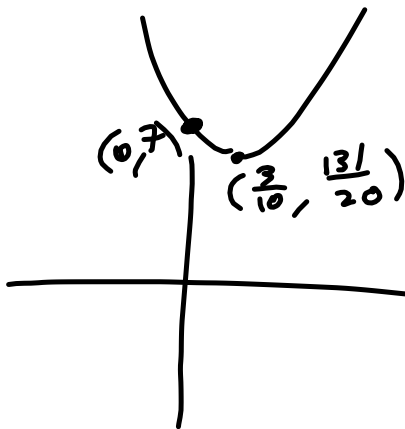
$$x^2 + 4x - 11$$

$$5x^2 - 3x + 7$$

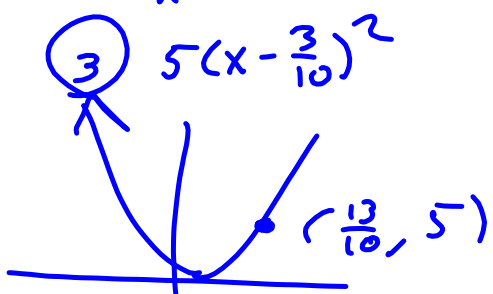
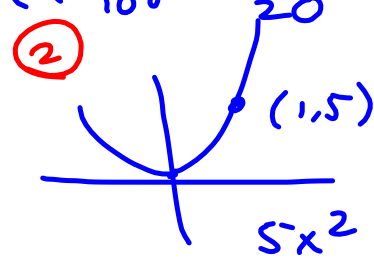
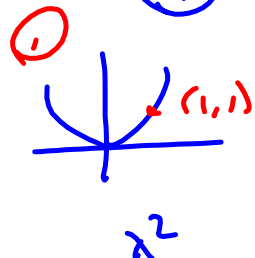
$$= 5\left(x^2 - \frac{3}{5}x + \left(\frac{3}{10}\right)^2\right) + 7 - 5\left(\frac{3}{10}\right)^2 = \frac{140-9}{20} = \frac{131}{20}$$

$$= 5\left(x - \frac{3}{10}\right)^2 + \frac{131}{20}$$

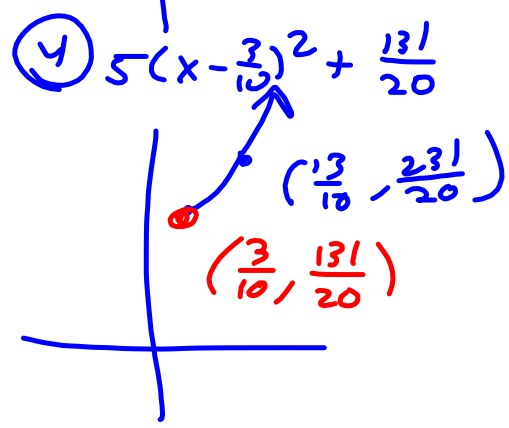
$$\frac{9}{100}(5) = \frac{9}{20}$$



- ① x^2
- ② $5x^2$
- ③ $5\left(x - \frac{3}{10}\right)^2$
- ④ $5\left(x - \frac{3}{10}\right)^2 + \frac{131}{20}$



Tracking
(1, 1) thru
the
moves.



$$\frac{5}{1} \cdot \frac{20}{20} + \frac{131}{20}$$

$$= \frac{231}{20}$$

$x^2, |x|$
 No horizontal flipping, due to symmetry

$$3(5-2x)^2 + 11$$

But $(5-2x)^2 =$
 $((-1)(2x-5))^2 = (-1)^2(2x-5)^2$
 $= (2x-5)^2$

$$(AB)^2 = A^2B^2 =$$

$$= 3(2x-5)^2 + 11$$

$|2-3x| \leq 5$
 $2-3x \leq 5$ AND $2-3x \geq -5$ for

No horizontal flips for even funcs.

Same prob, exactly:

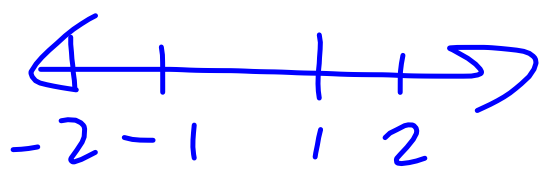
$$|3x-2| \leq 5$$

Gonna need a sense-reversal of the inequality

$$2-3x \leq 5$$

$$-3x \leq 3$$

$$x \geq -1$$



$$5 \sqrt{4-2x} - 8$$

Graph with
transformations,
Track 3 Key points

$$5 |4-2x| - 8$$

$$5(4-2x)^3 - 8$$

$$\frac{5}{4-2x} - 8$$

