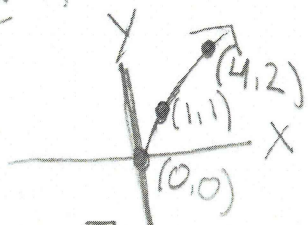
MAT 1340 Will Hamilton

37/50

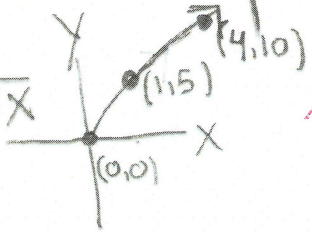
① $g(x) = 5\sqrt{3x-21} - 2$

$= 5\sqrt{3(x-7)} - 2$

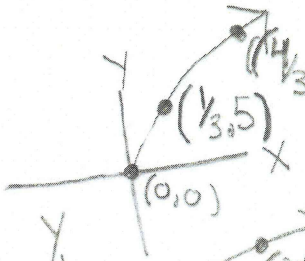
① $f(x) = \sqrt{x}$



② $= 5\sqrt{x}$

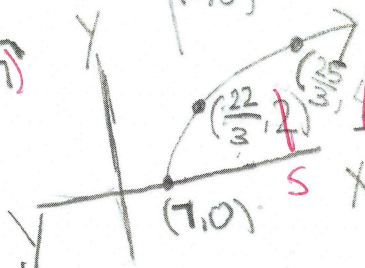


③ $5\sqrt{3x}$

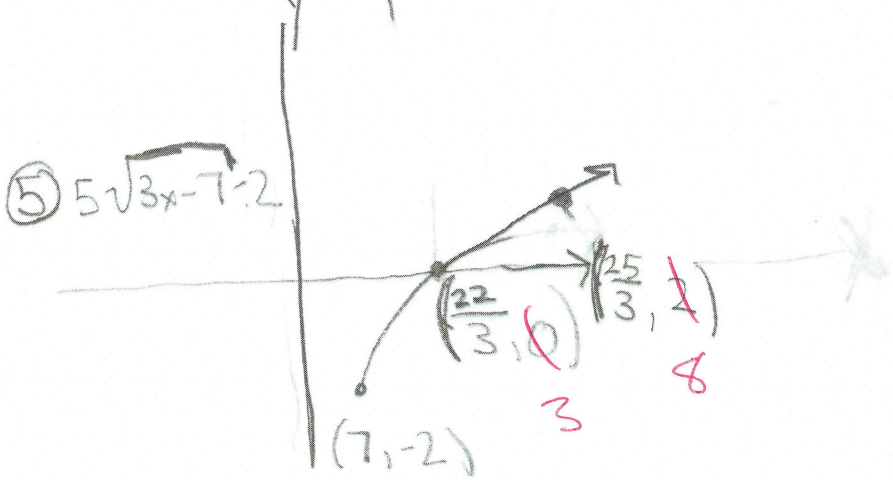


④ $5\sqrt{3\cdot(x-7)}$

change in x, no change in y



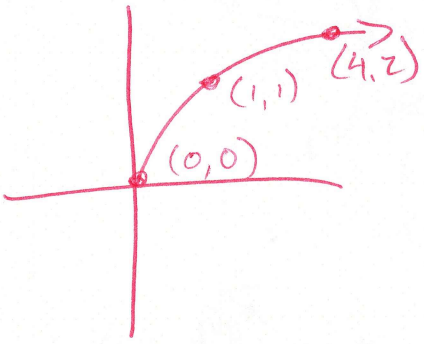
⑤ $5\sqrt{3x-7}-2$



+4.5

MAT 1340 Will Hamilton

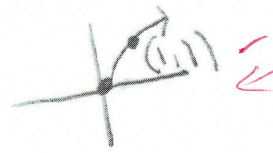
Like this!

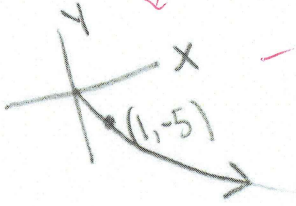


② $g(x) = -5\sqrt{3x-21}+2$

Draw BIG :)

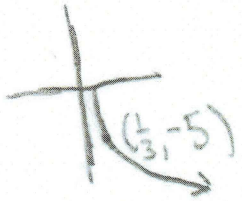
① $g(x) = -\sqrt{x}$ (1,1)





② $-5\sqrt{x}$ (1,-5)

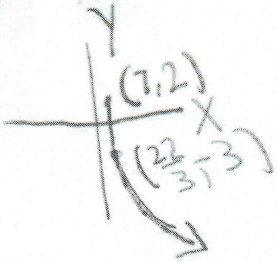
③ $-5\sqrt{3x}$ $(\frac{1}{3}, -5)$



④ $-5\sqrt{3(x-7)}$ $(\frac{22}{3}, -5)$

Pic?

⑤ $-5\sqrt{3(x-7)}+2$ $(\frac{22}{3}, -3)$



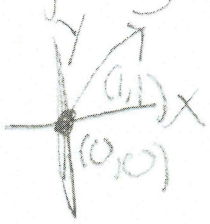
+4

MAT340 Will Hamilton

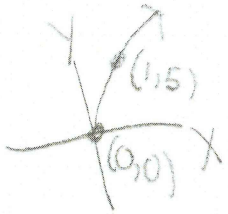
Please write a bit darker. After grading it, this part is too faint to scan very well.

③ $g(x) = 5\sqrt{-3x-21} - 11$

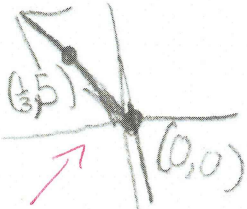
① $\sqrt{x}$



② $5\sqrt{x}$



③ $5\sqrt{-3x}$

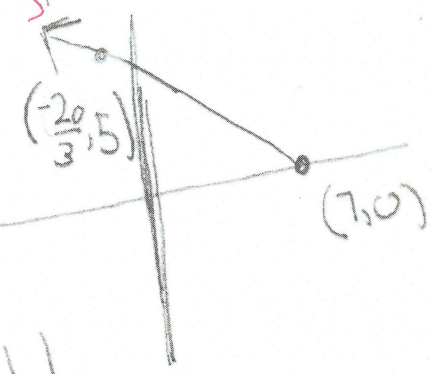


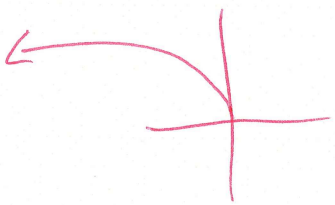
Be sure to show that this line curves.

pretty straight

④ $5\sqrt{-3(x+7)}$

yes, so shift Left!

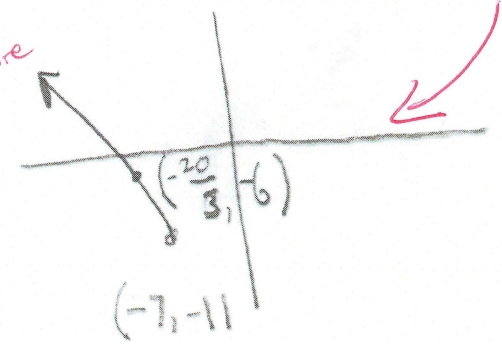




⑤ $5\sqrt{-3(x+7)} - 11$

nope, had it before

How?

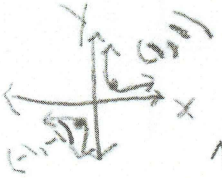


+3.5

MAT1340 Will Hamilton

④ $g(x) = \frac{3}{(-2x+8)^3} + 5$

① $\frac{1}{x}$

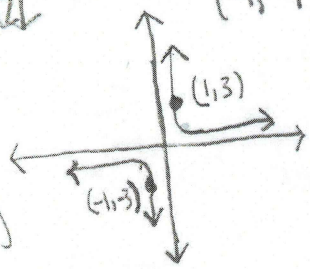


(1,1)

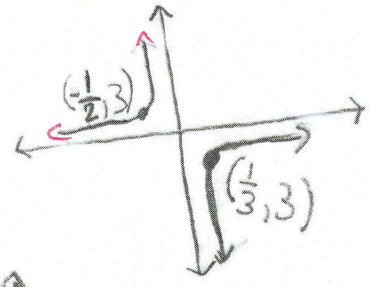
(-1,-1)

② $\frac{3}{x}$

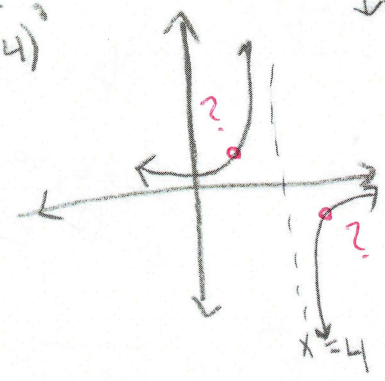
(x, 3x)



③ $\frac{3}{-2x}$



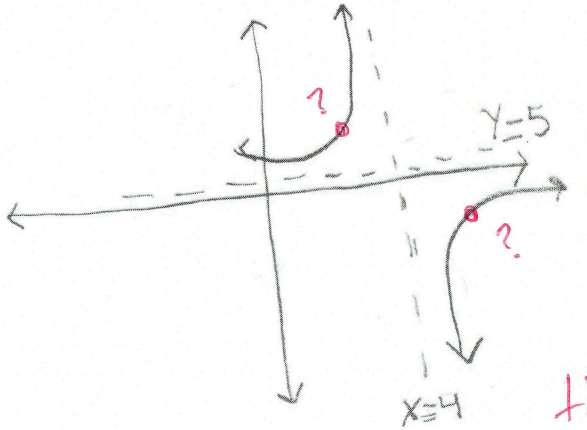
④ $\frac{3}{-2(x-4)^3}$



⑤ $\frac{3}{-2(x-4)^3} + 5$

$x = 4$

$y = 5$

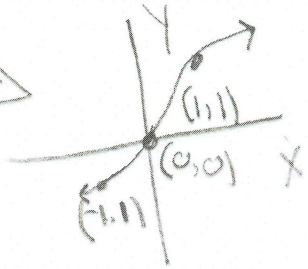


+4

MAT 1340 Will Hamilton

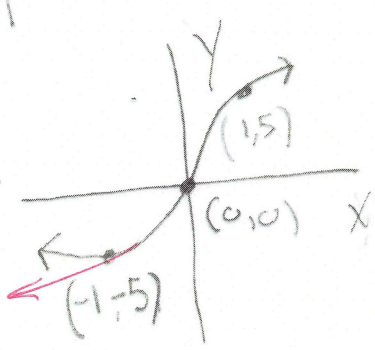
(5) $g(x) = 5\sqrt[5]{3x+21} - 6$

(1) $\sqrt[5]{x}$

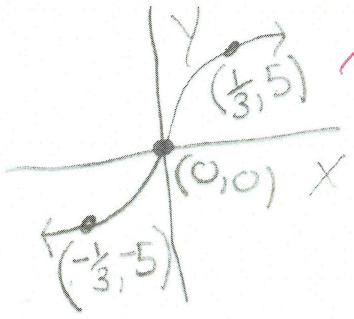


(2) $5\sqrt[5]{x}$

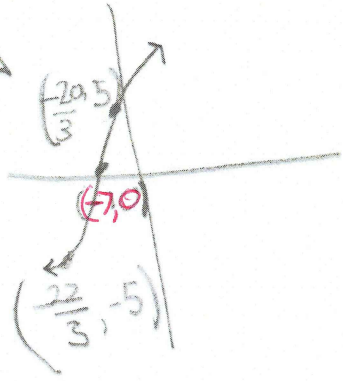
It doesn't go back up



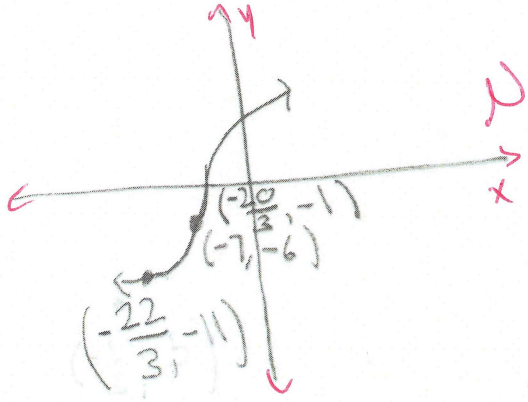
(3) $5\sqrt[5]{3x}$



(4) $5\sqrt[5]{3(x+7)}$



(5) $5\sqrt[5]{3(x+7)} - 6$



Nice!

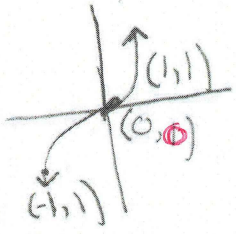
+5

MAT 1340 Will Hamilton

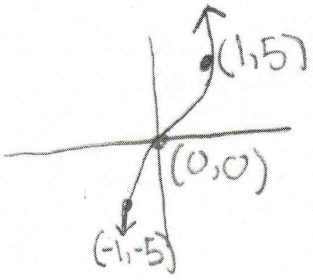
⑥ $g(x) = 5(3+21)^5 - 6$

$5(3(x+7))^5$

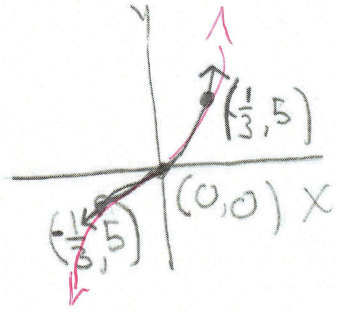
① x^5



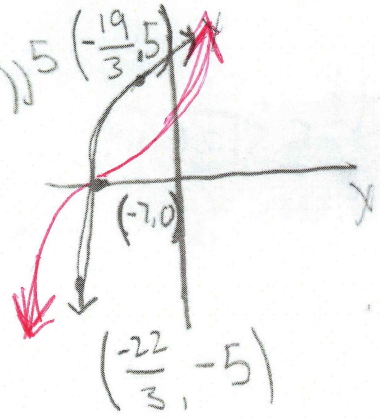
② $5x^5$



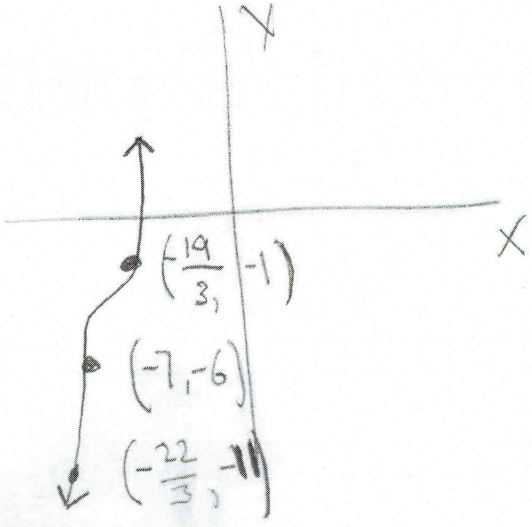
③ $5(3x)^5$



④ $5(3(x+7))^5$



⑤ $5(3x+21)^5 - 6$



+4.5

MAT1340 Will Hamilton

① $g(x) = 3(x+5)-7$

$h = -5$

$k = -7$

$(-5, -7)$

$(0, 8)$

$\left(-\frac{8}{3}, 0\right)$

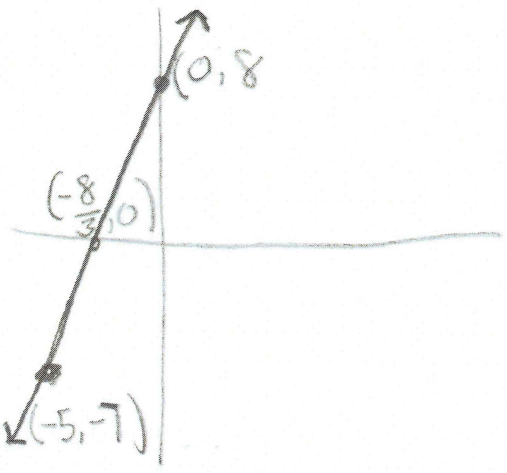
$x = -\frac{8}{3}$

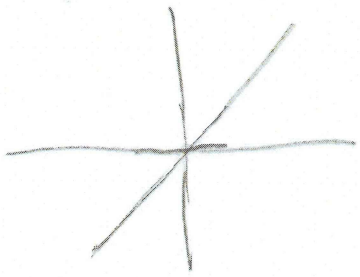
$3x + 8 = 0$

$\frac{3x}{3} = \frac{-8}{3}$

$x = -\frac{8}{3}$

② $y = x$





MAT 1340

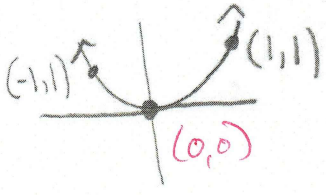
Will Hamilton

(8) $g(x) = 3(x+5)^2 - 7$

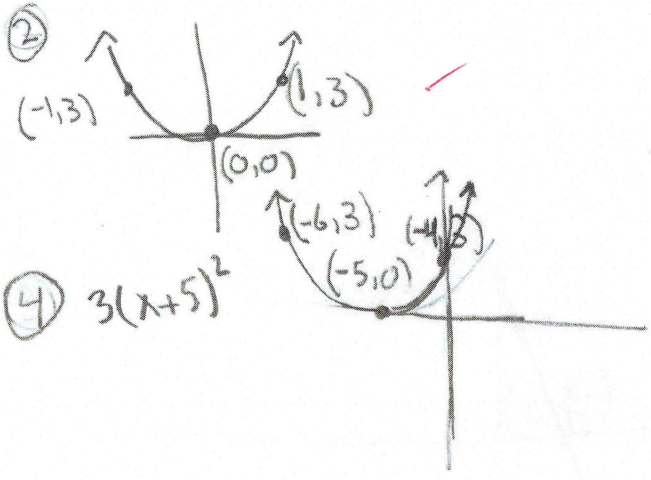
① x^2
② $3x^2$
③
④ $3(x+5)^2$
⑤ $3(x+5)^2 - 7$

$(-1,1)(1,1)(0,0)$

①



②

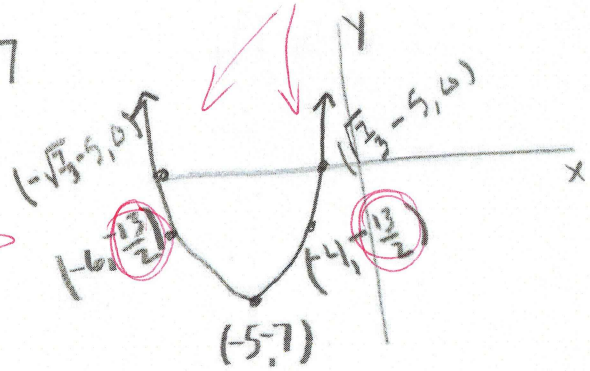


④ $3(x+5)^2$

$(-5,0)(-6,3)(-4,3)$

Intercepts - nice!

⑤ $3(x+5)^2 - 7$



Arithmetic error...

- Shift 4 down 7
- $4_0 = 3 \rightarrow 4 - 7 = -4$

+4.5

MAT 1340 Will Hamilton

(9) $g(x) = x^2 - 4x - 7$

$x^2 - 4x + \left(\frac{-4}{2}\right)^2 = 7 + \left(\frac{-4}{2}\right)^2$

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

start here ← $(x-2)(x-2) = 11$

$\sqrt{(x-2)^2} = \pm\sqrt{11}$

$(h,k) = (2,-11)$

$x - 2 = \pm\sqrt{11} + 2$

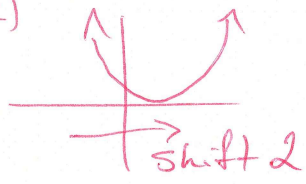
$+2 \quad +2$

$x = 2 \pm \sqrt{11}$

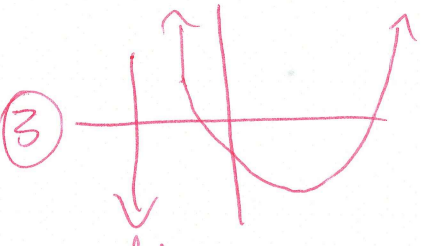
$(x-2)^2 - 11$

① x^2

② $(x-2)^2$

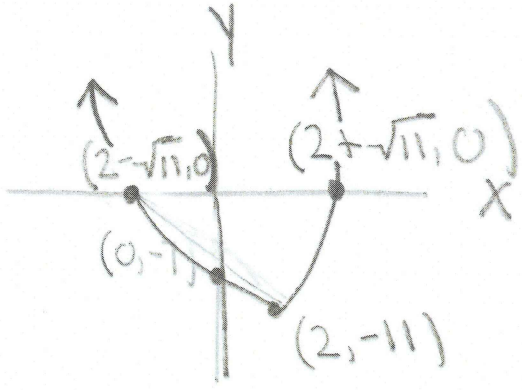


③



shift 11

④



↖ Need to see these steps

+2

MAT1340

Will Hamilton

(10) $g(x) = 4x^2 + 5x + 17$

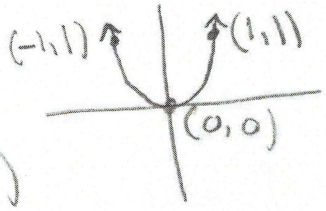
$4\left(x^2 + \frac{5}{4}x + \left(\frac{25}{64}\right)\right) + 17 - \left(\frac{25}{64}\right)4$

$4\left(x^2 + \frac{5}{4}x + \frac{25}{64}\right) + 17 + \frac{100}{64}$

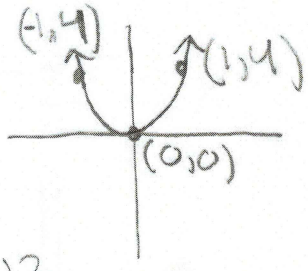
$4\left(x + \frac{5}{8}\right)\left(x + \frac{5}{8}\right) + \frac{247}{16}$

$4\left(x + \frac{5}{8}\right)^2 + \frac{247}{16}$ ← nice!

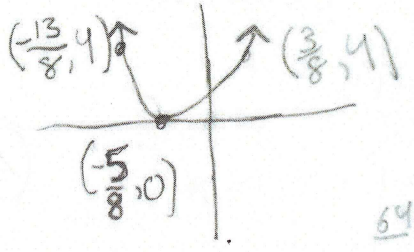
① x^2



② $4x^2$

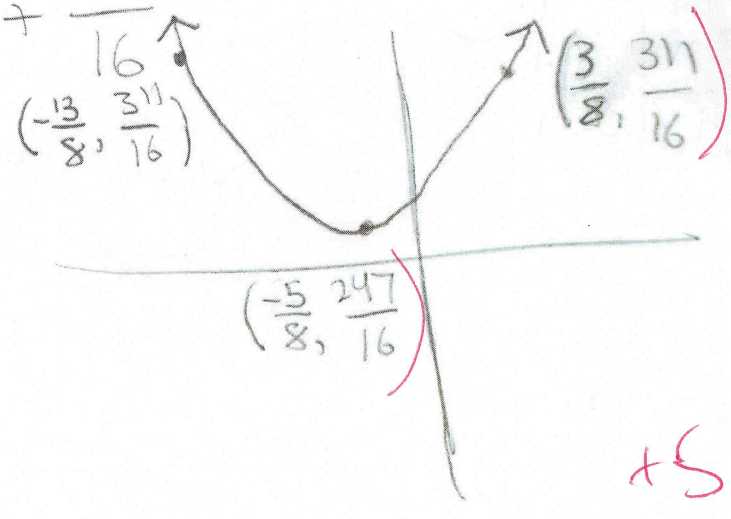


③ $4\left(x + \frac{5}{8}\right)^2$



$\frac{64}{16} + \frac{247}{16}$

④ $4\left(x + \frac{5}{8}\right)^2 + \frac{247}{16}$



Nice work!

+5