

* Review #5

① $s = ut + \frac{1}{2}at^2$

$-ut - ut$

$$\frac{s - ut}{t^2} = \frac{\frac{1}{2}t^2 a}{t^2}$$

(2) $\frac{s - ut}{t^2} = \frac{1}{2}a (2)$

$$\boxed{\frac{2s - ut}{t^2} = a}$$

② $(x - 3)^2 = (\sqrt{30 - 2x})^2$

$(x - 3)(x - 3) = 30 - 2x$

$x^2 - 6x + 9 = 30 - 2x$

$+2x - 30 - 30 + 2x$

$x^2 - 4x - 21 = 0$

$(x - 7)(x + 3) = 0$

$\boxed{x = 7}$

extraneous

③ $-4(x - 2)^2 + 9 = 13$

$-9 - 9$

$\frac{-4(x - 2)^2}{-4} = \frac{4}{-4}$

$\sqrt{(x - 2)^2} = \sqrt{-1}$

$x - 2 = \pm \sqrt{-1}$

$x - 2 = \pm i$

$\boxed{x = 2 \pm i}$

④ Impossible to find 3 solutions because it is a quadratic so the maximum you can find are 2

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

$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$x = \frac{-7 \pm \sqrt{(7)^2 - 4(2)(-2)}}{2(2)}$

$x = \frac{-7 \pm \sqrt{49 + 16}}{4}$

$\boxed{x = \frac{-7 \pm \sqrt{65}}{4}}$

* Review #6

① $R(t) = 6(10^{-0.038})^t$

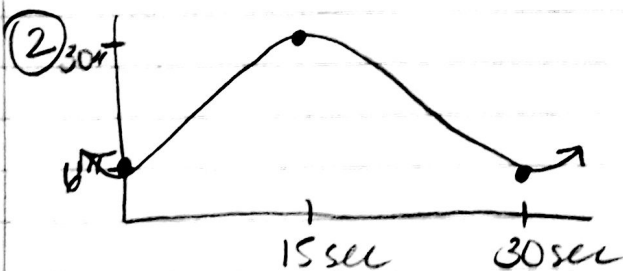
$R(3) = 6(10^{-0.038})^3$

$R(2) = 6(10^{-0.038})^2$

$R(3) - R(2) = 4.615$

$5.037 = \boxed{-0.422}$

The product decayed by the amount -0.422 within 24 hours



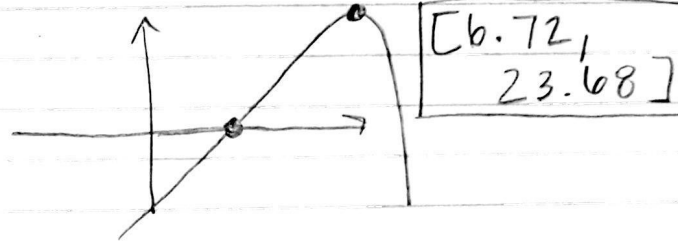
③ Type into $y =$ like so...

$$y = \frac{(-25x^2 + 875x - 4750)}{(750 - 25x)} \text{ graph!}$$

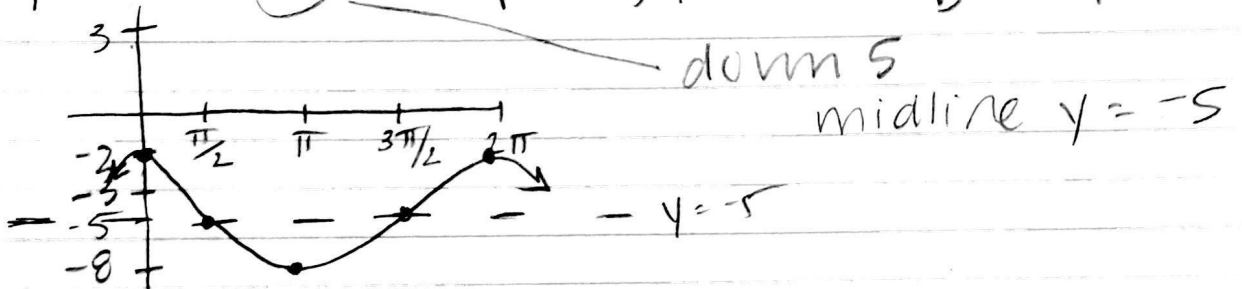
Window

$$y_{\min} = -10 \quad x_{\min} = -10$$

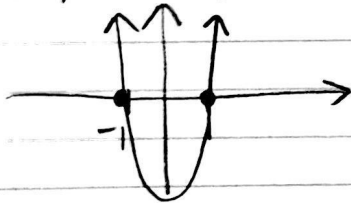
$$y_{\max} = 10 \quad x_{\max} = 30$$



④ $y = 3\cos x - 5$ amp = 3, period = $\frac{2\pi}{b} = \frac{2\pi}{1} = 2\pi$



⑤ $g(x) = x^2 + 5x^2 + 2x - 8$



Solutions $x = -1.33 \pm 1$
 End Behavior =
 up & up
 $x \rightarrow -\infty \quad f(x) \rightarrow \infty$
 $x \rightarrow \infty \quad f(x) \rightarrow \infty$

⑥ $f(5) = 0$ & $f(-3) = 0$

a) so... $x = 5$ & -3

$$\boxed{(x-5)(x+3)}$$

$$\boxed{x^2 - 2x - 15}$$

b) $(x-5)(x+3) \cdot x$
 $(x^2 - 2x - 15) \cdot x$
 $\boxed{x^3 - 2x^2 - 15x}$

add whatever

Review #7

① $f(x) = -(x+7)^2(x-2)$ $g(x) =$ graph

a) $x = -7$ $x = -3$
 $-7 + 3 = |-4| = \boxed{4}$

Asked for positive difference

b) $f(x)$ has larger max @

② $y = a(1+r)^t \rightarrow 100(1+0.04)^t = \boxed{100(1.04)^t}$

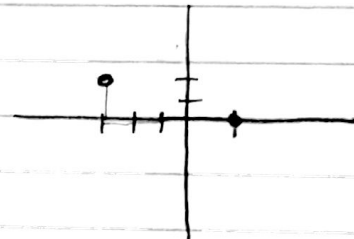
③ adding 8 so $d = 8 \rightarrow y = a_1 + d(n-1)$
 $= 12 + 8(n-1) = \frac{12 + 8n - 8}{4 + 8n}$

④ $A \rightarrow f(x) = -20x^2 + 320x - 1200$
 x is positive (prices) between $(4, 15)$
 $B \rightarrow g(x)$ is positive between $(4, 18)$

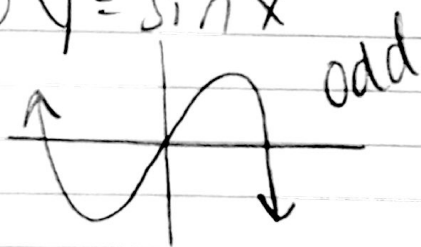
Review #8

① $3, 6, 9, 12, \dots$ add 3 so $d = 3$
 $a_n = a_1 + d(n-1)$
 $= 3 + 3(n-1) \rightarrow 3 + 3(35-1)$
 $3 + 3(34) = \boxed{105}$

② Use the vertex to help you
 $f(x) = |x+3|+2$ $g(x) = \text{graph}$
 $(-3, 2)$ $(1, 0)$
 go from $f(x)$ to $g(x)$
 $\boxed{\text{down } 2, \text{ right } 4}$

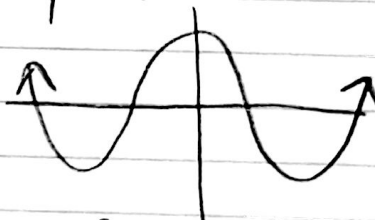


③ $y = \sin x$



Reflection over origin

$y = \cos x$



Reflection over y-axis

④ a) $y = e^{3x} \rightarrow x = e^{3y}$
 $e^{3y} = x$

$\ln x = 3y \rightarrow \boxed{y^{-1} = 1/3 \ln x}$

b) $y = x^3/5 \rightarrow x = y^3/5$
 $5x = y^3$
 $\boxed{y^{-1} = \sqrt[3]{5x}}$

c) $y = \frac{4}{x} \rightarrow x = \frac{4}{y} \rightarrow \boxed{y^{-1} = \frac{4}{x}}$