MATHEMATICS THAT WORKS for

Algebra II Common Core

Regents Exams Only Review 2018

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ANSWER KEY

1) CHOICE #3

2) CHOICE #2

3) CHOICE #4

4) CHOICE #1

5) CHOICE #3

6) CHOICE #2

7) CHOICE #4

8) CHOICE #2

9) CHOICE #3

10) CHOICE #2

11) CHOICE #4

12) CHOICE #3

13) CHOICE #2

14) CHOICE #3

15) CHOICE #3

16) CHOICE #2

17) CHOICE #3

18) CHOICE #4

19) CHOICE #4

20) CHOICE #3

21) CHOICE #2

22) CHOICE #4

23) CHOICE #3

24) CHOICE #4

25) $\sec(\theta)\cos^2(\theta)\tan(\theta) = \sin(\theta)$

$$\frac{1}{\cos(\theta)}\frac{\cos^2(\theta)}{1}\frac{\sin(\theta)}{\cos(\theta)} = \sin(\theta)$$

$$\sin(\theta) = \sin(\theta)$$

26) $m^4 - 11m^2 + 10 + 3m^3 - 3m$

$(m^2 - 1)(m^2 - 10) + 3m(m^2 - 1)$

$(m^2 - 1)(m^2 + 3m - 10)$

$(m + 1)(m - 1)(m + 5)(m - 2)$

27) $\dfrac{5x+6}{x+4} - 2 = \dfrac{5}{x}$

$\dfrac{x(x+4)}{1}\dfrac{5x+6}{x+4} - 2\dfrac{x(x+4)}{1} = \dfrac{5}{x}\dfrac{x(x+4)}{1}$

$5x^2 + 6x - 2x^2 - 8x = 5x + 20$

$3x^2 - 7x - 20 = 0$

$(3x+5)(x-4) = 0$

$x = -\dfrac{5}{3} \quad x = 4$

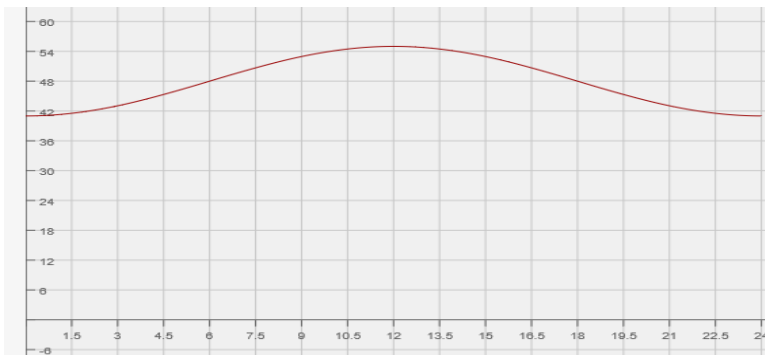28) Not independent. $P(G) = 0.22 \quad P(G|M) = 0.1875$

29) $f^{-1}(x) = \dfrac{\sqrt[3]{x+2} - 5}{2}$

30) $A = 60$, $B = 15$ 30 minutes.

31) $3(-2)^4 + 2(-2)^3 + 15(-2) - 2 = 0$ thus -2 is a root and $x + 2$ is a factor

32) First 197.5 F°   approaches 39.5 F°

33) $f(t) = -7\cos(\dfrac{\pi}{12}x) + 48$

34) x = 3 , y = - 4, z = - 1   (3, - 4, - 1)

35)Mean difference = 4.5 The average maximum weight obtained on the leg press machine for the group of Barbell users was 4.5 lbs. heavier than for the dumbbell users.

The simulation represents a random assignment of individual results into 2 groups. The 4.5 result although possible, is extremely unlikely, thus the difference in the average of the maximum weights on the leg press machine is significant.

36) 3 real zeroes   Given h(3) = 0 provides the first root   t = 3 since the remainder is 0.

$6t^3 - 29t^2 + 23t + 30 = (6t^2 - 11t - 10)(t - 3) = (3t + 2)(2t - 5)$

The 3 real roots are $t=3, t=-\dfrac{2}{3}, t=\dfrac{5}{2}$

37) Av rate of change 2.08 million

$t > \dfrac{\ln\left(\dfrac{4}{3}\right)}{0.032}$

   t greater than 8.99 years

During the year 2014 the population will exceed 95 million.

During the year 2017, the population of country B is estimated to be greater than country A.
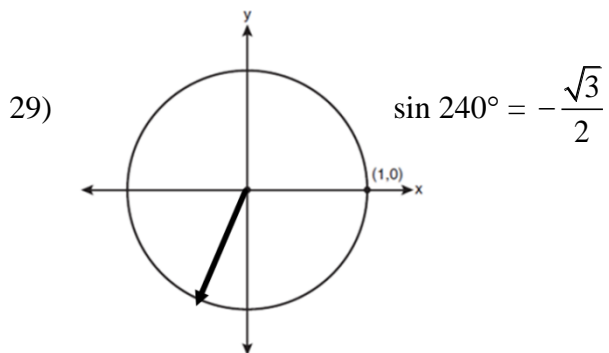
1) CHOICE #2

2) CHOICE #2

3) CHOICE #2

4) CHOICE #1

5) CHOICE #4

6) CHOICE #2

7) CHOICE #4

8) CHOICE #3

9) CHOICE #1

10) CHOICE #2

11) CHOICE #2

12) CHOICE #1

13) CHOICE #3

14) CHOICE #2

15) CHOICE #1

16) CHOICE #1

17) CHOICE #3

18) CHOICE #2

19) CHOICE #2

20) CHOICE #1

21) CHOICE #4

22) CHOICE #4

23) CHOICE #2

24) CHOICE #3

25) $y = (x + 5)^2 + 15$ Vertex (-5, 15)

26) 62.5%

27) $(x - 2)(x - 3)(x + 3)$

28) $\dfrac{4}{3}$

29)

$\sin 240° = -\dfrac{\sqrt{3}}{2}$

30) $\dfrac{d-8}{5}$

31) $T = T_s + (T_I - T_S)e^{-kt}$

$T = 51.95°$

32) $x^3 - 125 = (x - 5)(x^2 + 10x + 25) = 0$

Thus $x = 5$ and $x^2 + 10x + 25 = 0$ provides 2 imaginary roots.

33) Vertex is (5, -2)

$y = \dfrac{1}{16}(x - 5)^2 - 2$

34) Exponential Decay at a rate of 5%.

35) z score is 0.90   81.6% of the students had a lower score than Mary.

36) t = 6.4 years

37)   a) Zeroes are $x = 1$, $x = -3$ and $x = -3$

b) $f(x) = k(x + 3)^2(x - 1)$

c) $k = 1$

d) $f(x) = 1(x + 3)^2(x - 1) = x^3 + 5x^2 + 3x - 9$

e) $f(-1) = -8$

1) CHOICE #1

2) CHOICE #1

3) CHOICE #1

4) CHOICE #1

5) CHOICE #4

6) CHOICE #2

7) CHOICE #1

8) CHOICE #4

9) CHOICE #4

10) CHOICE #2

11) CHOICE #2

12) CHOICE #3

13) CHOICE #4

14) CHOICE #2

15) CHOICE #2

16) CHOICE #1

17) CHOICE #4

18) CHOICE #2

19) CHOICE #2

20) CHOICE #2

21) CHOICE #1

22) CHOICE #1

23) CHOICE #2

24) CHOICE #4

25) x = 4

26) $\displaystyle\sum_{x=1}^{15} 7x$

27) A controlled experiment. His treatment variable is the amount of sunlight after he divided the group into the 2 tanks.

28) 0.25

29) $r = \dfrac{4}{3}$

30) 16, 56, 216, 856

31) x = 0.230

32) $(x - 4)^2 + (y + 6)^2 = 36$ center (4, - 6)

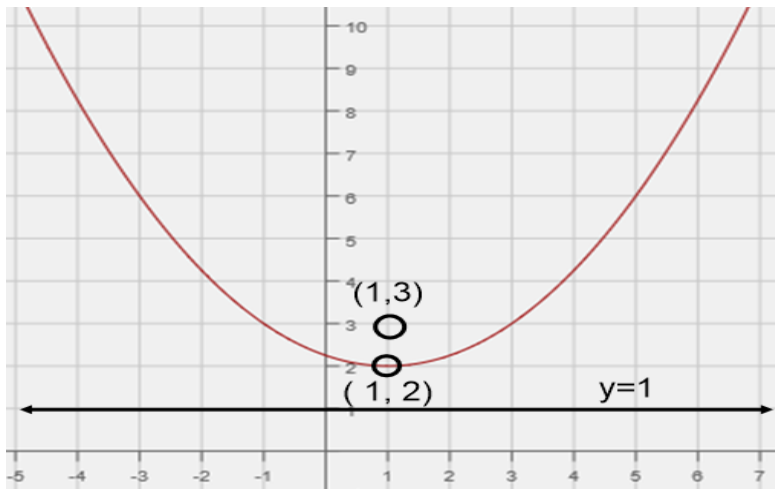33) $x = \dfrac{1}{3}$

34) $x = 2, y = 1, z = 2$

35) A quadratic because the second set of differences are all equal to 4.

$$y = 2x^2 + 3$$

36)

37) $x = -1$ and $x = -\dfrac{1}{3}$

1) CHOICE #3	13) CHOICE #3
2) CHOICE #4	14) CHOICE #4
3) CHOICE #2	15) CHOICE #1
4) CHOICE #3	16) CHOICE #1
5) CHOICE #3	17) CHOICE #4
6) CHOICE #3	18) CHOICE #4
7) CHOICE #2	19) CHOICE #3
8) CHOICE #2	20) CHOICE #1
9) CHOICE #2	21) CHOICE #3
10) CHOICE #3	22) CHOICE #4
11) CHOICE #2	23) CHOICE #1
12) CHOICE #2	24) CHOICE #4

25) $x = 0$

26) $\dfrac{2}{35}$ Since both must occur and they are independent, the probability is the product of the 2 individual probabilities.

27) 11 hours   28) 230

29) $f(x) = (x - 2)(x + 1)(x - 3) = x^3 - 4x^2 + x + 6$

30) 16 min   31) 0.13   32) -b

33) $y = 6(x - \dfrac{3}{2})^2 - \dfrac{7}{2}$ Vertex $(\dfrac{3}{2}, -\dfrac{7}{2})$

34) Set A The means of 2 groups should be symmetrical around the mean of the entire group.

   Mean for set C = 79

35) Zeroes   x = -2, -1 and 2

   $f(x) = k(x + 2)(x + 1)(x - 2)$ k = 2

   $f(x) = 2x^3 + 2x^2 - 8x - 8$

   f(3) = 40

36) t = 14,000 years.

37) $x = \dfrac{1}{2}$, $y = \dfrac{3}{2}$, z = -1 $(\dfrac{1}{2}$, $\dfrac{3}{2}$, -1)

(1) . . . . . 4 . . . . .   (9) . . . . . 2 . . . . .   (17) . . . . . 1 . . . . .

(2) . . . . . 3 . . . . .   (10) . . . . . 4 . . . . .   (18) . . . . . 1 . . . . .

(3) . . . . . 2 . . . . .   (11) . . . . . 1 . . . . .   (19) . . . . . 4 . . . . .

(4) . . . . . 3 . . . . .   (12) . . . . . 1 . . . . .   (20) . . . . . 2 . . . . .

(5) . . . . . 3 . . . . .   (13) . . . . . 3 . . . . .   (21) . . . . . 3 . . . . .

(6) . . . . . 1 . . . . .   (14) . . . . . 2 . . . . .   (22) . . . . . 4 . . . . .

(7) . . . . . 3 . . . . .   (15) . . . . . 4 . . . . .   (23) . . . . . 3 . . . . .

(8) . . . . . 4 . . . . .   (16) . . . . . 2 . . . . .   (24) . . . . . 4 . . . . .

(25) $\frac{1}{x} - \frac{1}{3} = -\frac{1}{3x}$
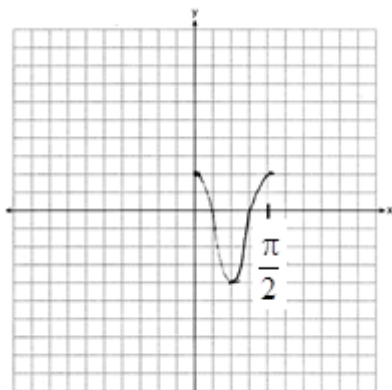
$\frac{3-x}{3x} = -\frac{1}{3x}$

$3 - x = -1$

$x = 4$

(26) Randomly assign participants to two groups. One group uses the toothpaste with ingredient X and the other group uses the toothpaste without ingredient X.

(27) No: when you divide by (x – 5) you get a remainder of 105, must be zero to be a factor

(28)

(29) $P(S \text{ and } M) = \dfrac{649}{1376} + \dfrac{433}{1376} - \dfrac{974}{1376} = \dfrac{108}{1376}$

(30) Focus is (4,0)

(31) $\dfrac{x^3 + 9}{x^3 + 8} = \dfrac{x^3 + 8}{x^3 + 8} + \dfrac{1}{x^3 + 8}$

$\dfrac{x^3 + 9}{x^3 + 8} = \dfrac{x^3 + 9}{x^3 + 8}$

(32) 6 %

(33) (7,-2) & (3,2)

(34) $S_n = \dfrac{33000 - 33000(1.04)^n}{1 - 1.04}$

$S_n = \dfrac{33000 - 33000(1.04)^{15}}{1 - 1.04} \approx 660,778.39$
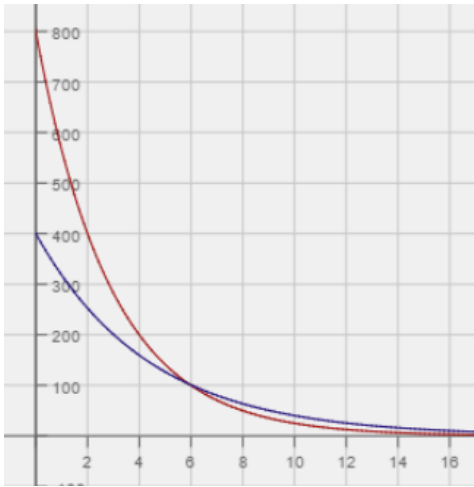
(35) $0.602 \pm 2(0.066)$

Interval: $0.47 - 0.73$

Since 0.50 falls within the 95% interval, this supports the concern there may be an even split.

(36) $\dfrac{f(4) - f(-2)}{4 - 2} = \dfrac{80 - 1.25}{6} = 13.125$

$\dfrac{g(4) - g(-2)}{4 - -2} = \dfrac{179 - (-49)}{6} = 38$

g(x) has a greater rate of change

(37) $A(t) = 800e^{-.347t}$ $B(t) = 400e^{-.231t}$

(1) 4	(9) 1	(17) . . . . . 3 . . . . .
(2) 1	(10) 2	(18) . . . . . 3 . . . . .
(3) 2	(11) 2	(19) . . . . . 4 . . . . .
(4) 3	(12) 2	(20) . . . . . 4 . . . . .
(5) 3	(13) 1	(21) . . . . . 3 . . . . .
(6) 3	(14) 1	(22) . . . . . 4 . . . . .
(7) 1	(15) 3	(23) . . . . . 2 . . . . .
(8) 1	(16) 1	(24) . . . . . 4 . . . . .

(25) Amplitude, because the height of the graph shows the volume of the air.

(26) $\left(3^{\frac{1}{5}}\right)^2 = \left(3^2\right)^{\frac{1}{5}} = (9)^{\frac{1}{5}} = \sqrt[5]{9}$

(27) -36xi

(28) $\tan\theta \approx -1.02$

(29) Using a 95% level of confidence, $\bar{x} \pm 2$ standard deviations sets the usual wait time as 150-302 seconds. 360 seconds is unusual.

(30) x – intercept of f is (5,0) and the x-intercept of h is (2,0) f has larger value

(31) average rate of change $\dfrac{156.25 - 56.25}{70 - 50} = 7.5$

Between 50-70 mph, each additional mph in speed requires 7.5 more feet to stop.

(32) $P(A \cup B) = P(A) + P(B) - P(A \cap B)$

   $0.8 = 0.6 + 0.5 - P(A \cap B)$

   $P(A \cap B) = 0.3$

   A and B are independent since $P(A \cap B) = P(A) \cdot P(B)$

   $0.3 = 0.6 \cdot 0.5$
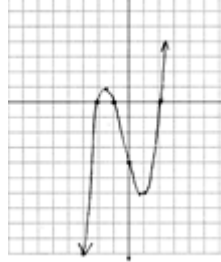
   $0.3 = 0.3$

(33) $0 = x^2(x+1) - 4(x+1)$

   $0 = (x^2 - 4)(x+1)$

   $0 = (x+2)(x-2)(x+1)$

   $x = -2, -1, 2$

(34) $7 = 20(.5)^{\frac{t}{8.02}}$

   $\log 0.35 = \dfrac{t \log 0.5}{8.02}$

   $t = \dfrac{8.02 \log 0.35}{\log 0.5} \approx 12$

(35) $\left(\sqrt{2x-7}\right)^2 = (5-x)^2$

   $2x - 7 = x^2 - 12x + 25$

   $0 = x^2 - 12x + 32$

   $0 = (x-8)(x-4)$

   $x = 8, x = 4$

   $x = 8$ does not check, so $x = 4$ is only solution

(36) Some of the students who did not drink energy drinks read faster than those who did drink energy drinks. $17.7 - 19.1 = -1.4$ Differences of -1.4 and less occur $\dfrac{25}{232}$ or about 10% of the time, so the difference is not unusual.

(37)　$A = 5000(1.045)^n$ 　　　　　$B = 5000\left(1 + \dfrac{.046}{4}\right)^{4n}$

$B = 5000\left(1 + \dfrac{.046}{4}\right)^{4(6)} \approx 6578.87$

$A = 5000(1.045)^6 \approx 6511.30$

Difference $= 67.57$

$2 = 1\left(1 + \dfrac{.046}{4}\right)^{4n}$

$1 = 1(1.0115)^{4n}$

$\log 2 = 4n \cdot \log 1.0115$

$n = \dfrac{\log 2}{4 \log 1.0115} \approx 15.2$

(1)..... 2 .....   (9)..... 2 .....   (17)..... 1 .....

(2)..... 1 .....   (10)..... 3 .....   (18)..... 4 .....

(3)..... 4 .....   (11)..... 4 .....   (19)..... 2 .....

(4)..... 1 .....   (12)..... 2 .....   (20)..... 2 .....

(5)..... 4 .....   (13)..... 3 .....   (21)..... 4 .....

(6)..... 3 .....   (14)..... 1 .....   (22)..... 3 .....

(7)..... 2 .....   (15)..... 3 .....   (23)..... 1 .....

(8)..... 3 .....   (16)..... 2 .....   (24)..... 1 .....

(25) $-2 - 2i$

(26) sample: pails of oranges; population: truckload of oranges. It is likely that about 5% of all the oranges are unsatisfactory.

(27) $\csc\theta = \dfrac{1}{\sin\theta}$

$\sin\theta = y$ (y coordinate on unit circle)

$\csc\theta = \dfrac{1}{y}$

(28) $\dfrac{\ln\frac{1}{2}}{1590}$ is negative, therefore $M(t)$ represents decay.

(29)

(30) $y = x^2$

(31) No because $\quad P(M \mid R) \neq P(M)$

$$\frac{70}{180} \neq \frac{230}{490}$$

$$.38 \neq .47$$

(32) $3x + 13 + \dfrac{6}{x - 2}$

(33) $-2x^2 + 8x + 5 = hx^2 - 4hx + k$

$\quad h = -2$

$\quad k = 5$

(34) Jillian's plan, because distance increases by one mile each week

Recursive: $\quad a_1 = 10$

$\qquad\qquad a_n = a_{n-1} + 1$

Explicit $\quad a_n = 12 + n$

(35) $P(P \mid K) = \dfrac{P(P \wedge K)}{P(K)} = \dfrac{1.9}{2.3} = 82.6\%$

A key club member has an 82.6% probability of being enrolled in AP Physics.

(36) $20000 = \text{PMT}\left(\dfrac{1-(1+0.00625)^{-60}}{0.00625}\right)$

$\text{PMT} = 400.76$

$21000 - x = 300\left(\dfrac{1-(1+0.00625)^{-60}}{0.00625}\right)$

$x = 6028$

(37) $4t^2 - 24t + 36 = t$

$4t^2 - 25t + 36 = 0$

$(4t - 9)(t - 4) = 0$

$t = \dfrac{9}{4} \qquad\qquad t = 4$

reject

after 1 hour $= \sqrt{1} - 2(1) + 6 = 5$

after 3 hours $= \sqrt{3} - 2(3) + 6 = \sqrt{3}$

$5 - \sqrt{3} = 3.268$

so 327 mph

(1)..... 1	(9)..... 2	(17)..... 4 .....
(2)..... 1	(10)..... 3	(18)..... 2 .....
(3)..... 3	(11)..... 1	(19)..... 1 .....
(4)..... 2	(12)..... 2	(20)..... 3 .....
(5)..... 2	(13)..... 3	(21)..... 3 .....
(6)..... 4	(14)..... 2	(22)..... 3 .....
(7)..... 4	(15)..... 4	(23)..... 4 .....
(8)..... 1	(16)..... 4	(24)..... 2 .....

(25) $r(2) = 2^3 - 4(2)^2 + 4(2) - 6 = -6$ x − 2 is NOT a factor remainder is NOT = 0

(26) normalcdf(0,8.25,8,.5) = 69%

(27) $(x^2 + 4)(4x - 1)$

(28) $\frac{2}{3}$ second. The wheel rotates once very $\frac{2}{3}$ second.

(29)

(30)

$$\sqrt{x-4} = 6 - x$$
$$x - 4 = 36 - 12x + x^2$$
$$0 = x^2 - 13x + 40$$
$$0 = (x - 8)(x - 5)$$
$$x = 8, 5 \quad \text{Reject 8} \quad x = 5$$

(31)
$$x^{\frac{1}{3}} \cdot x^{\frac{1}{2}} = x^{\frac{5}{6}}$$

(32) one sibling jogs $\dfrac{416}{2239} = .19$ both siblings jog $\dfrac{400}{1780} = .22$ Therefore, the student having

2 siblings that jog is more likely to jog.

(33) (0, 2, -1)   one possible $y - z = 3$

$$y + 2z = 0$$

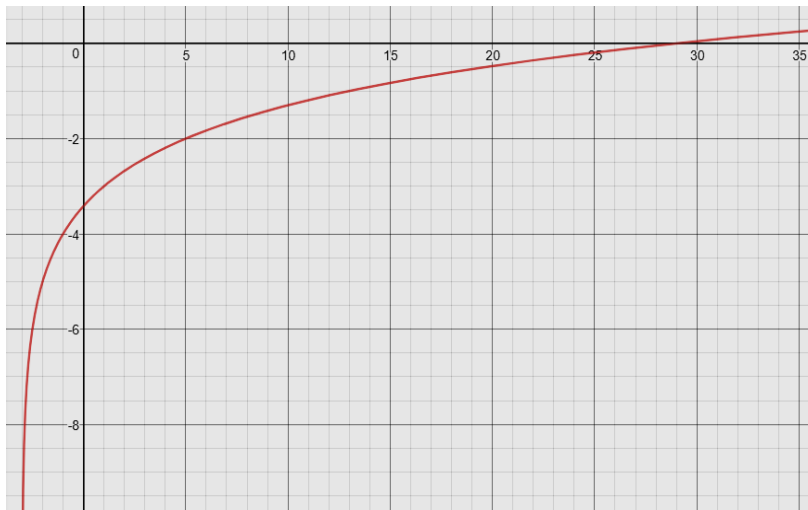$$y = -2z \qquad z = -1 \text{ then } y = 2 \text{ and substituting } x = 0$$

(34)
$$m = 172600 \cdot \frac{.00305(1+.00305)^{12 \cdot 15}}{(1+.00305)^{12 \cdot 15} - 1} \approx 1247$$

$$1100 = (172600 - x) \cdot \frac{.00305(1+.00305)^{12 \cdot 15}}{(1+.00305)^{12 \cdot 15} - 1}$$

$$152193 = 172600 - x$$

$$x \approx 20407$$

(35)

$$x \to -3, \; y \to -\infty \quad as \; x \to \infty, \; y \to \infty$$

(36) $.506 \pm 2(.078)$

interval from 0.35 to 0.66

Because, the 32.5% value falls below the 95% confidence level.

(37) $100 = 140(\frac{1}{2})^{\frac{5}{h}}$ $h \approx 10.3002$ $t \approx 18.6$

$$\log\left(\frac{100}{140}\right) = \log\left(\frac{1}{2}\right)^{\frac{5}{h}}$$

$$\log\left(\frac{100}{140}\right) = \frac{5}{h}\log\left(\frac{1}{2}\right)$$

$$h = \frac{5\log\left(\frac{1}{2}\right)}{\log\left(\frac{100}{140}\right)} \approx 10.3002$$

$$40 = 140(\frac{1}{2})^{\frac{t}{10.3002}}$$

$$\log(\frac{40}{140}) = \frac{t}{10.3002}\log(\frac{1}{2})$$

$$t \approx 18.6$$

(1) 1	(9) 3	(17) . . . . . 2 . . . . .
(2) 3	(10) 3	(18) . . . . . 4 . . . . .
(3) 3	(11) 1	(19) . . . . . 1 . . . . .
(4) 2	(12) 4	(20) . . . . . 2 . . . . .
(5) 3	(13) 1	(21) . . . . . 4 . . . . .
(6) 2	(14) 2	(22) . . . . . 1 . . . . .
(7) 4	(15) 1	(23) . . . . . 4 . . . . .
(8) 4	(16) 2	(24) . . . . . 3 . . . . .

(25)   One possibility: $(-8)^{\frac{4}{3}} = \sqrt[3]{(-8)^4} = (-2)^4 = 16$

(26) P(W and D) = P(D) • P(W | D)

$.4 = .5 • P(W | D)$ $P(W | D) = \dfrac{.4}{.5} = .8$

(27) $(x^2 + y^2)^2 = (x^2 - y^2)^2 + (2xy)^2$

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

$= x^4 + 2x^2y^2 + y^4$

(28) Because there are 6 different flavors, a six sided die can be used for a simulation and a particular number can be used to represent a black licorice jelly bean. Then the simulation can be used to see when that number appears 4 times in a row and how many times it happens.

(29) $a_1 = 4$ $a_n = 2a_{n-1} + 1$ To find the 8th term, you need to find the first 7

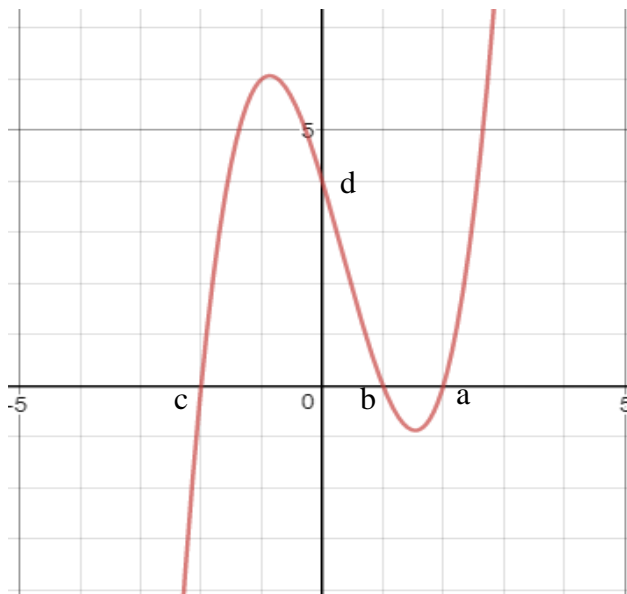4, 9, 19, 39, 79, 159, 319, thus the 8th = 2(319) + 1 = 639

(30) $8.75 = 1.25(x)^{49}$

$\dfrac{8.75}{1.25} = x^{49}$ $\left(\dfrac{8.75}{1.25}\right)^{\frac{1}{49}} = \left(x^{49}\right)^{\frac{1}{49}}$ $x \approx 1.0405$ 4% growth

(31) EVEN $j(-x) = (-x)^4 - 3(-x)^2 - 4 = x^4 - 3x^2 - 4 = j(x)$

(32)

$$\frac{3p}{p-5} - \frac{2}{p+3} = \frac{p}{p+3}$$

$$\frac{3p}{p-5} = \frac{p}{p+3} + \frac{2}{p+3}$$

(33)

$$\frac{3p}{p-5} = \frac{p+2}{p+3}$$

$$3p^2 + 9p = p^2 - 3p - 10$$
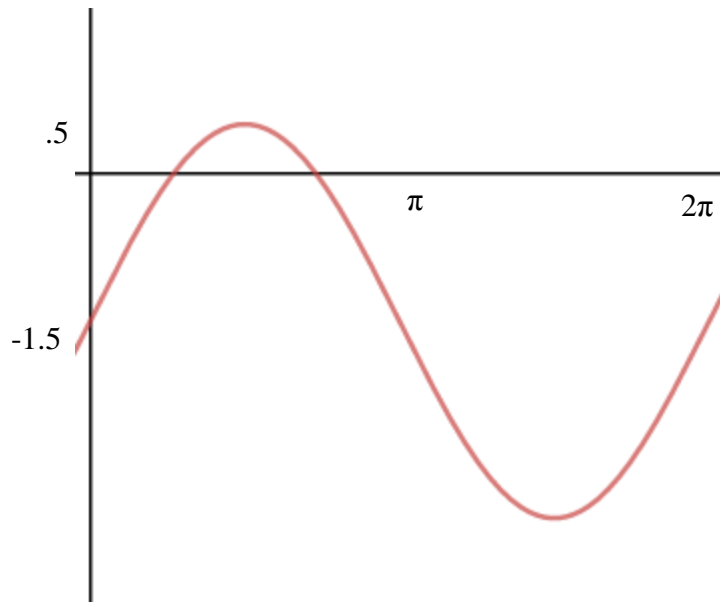
$$2p^2 + 12p + 10 = 0$$

$$2(p^2 + 6p + 5) = 0$$

$$(p+5)(p+1) = 0$$

$$p = -5, -1$$

(34) $\dfrac{6.25 - 2.25}{21 - 5} = .25$ fine per day 5 days $\times .25 = 1.25$ thus 1 dollar replacement fee

$a_n = a_1 + (n-1)d$ $a_n = 1.25 + (n-1)(.25)$ $a_{60} = 1.25 + (60-1)(.25) = \$16$
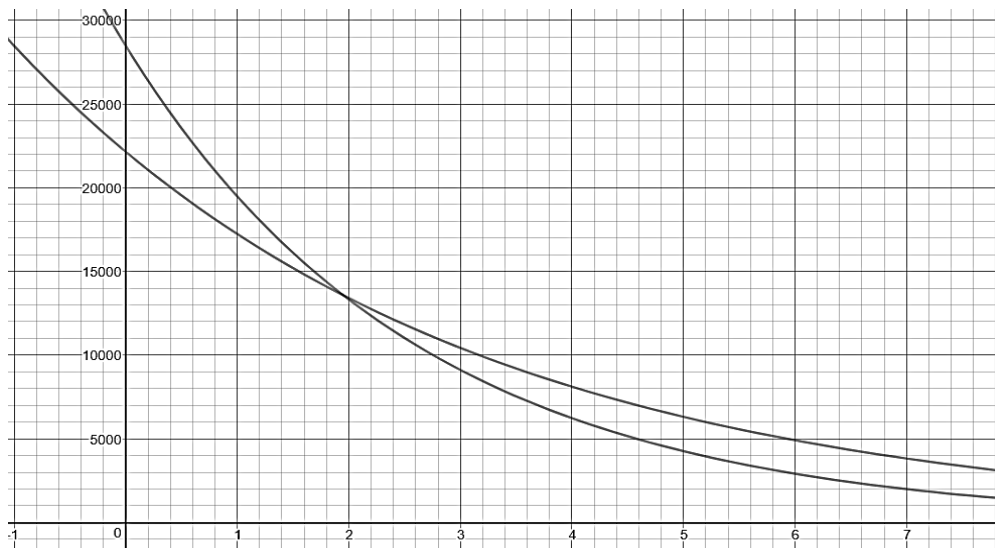
(35)

The graph of $y = 2\sin\left(x - \dfrac{\pi}{3}\right) - \dfrac{3}{2}$ would represent the graph above shifted $\dfrac{\pi}{3}$ to the right.

(36) $y = 4.168(3.981)^x$

$100 = 4.168(3.981)^x$ $\qquad \dfrac{100}{4.168} = (3.981)^x \quad \log\left(\dfrac{100}{4.168}\right) = x\log(3.981) \quad x \approx 2.25$

(37)

$t \approx 1.95$ 1.95 years for the loan balance to $=$ the value of the car.

YEAR 6 $\approx \$2916.87$ less than the \$3000 deductible.

(1)..... 4	(9)..... 4	(17)..... 3 .....
(2)..... 3	(10)..... 1	(18)..... 3 .....
(3)..... 4	(11)..... 4	(19)..... 4 .....
(4)..... 2	(12)..... 1	(20)..... 2 .....
(5)..... 4	(13)..... 3	(21)..... 2 .....
(6)..... 2	(14)..... 1	(22)..... 2 .....
(7)..... 3	(15)..... 1	(23)..... 4 .....
(8)..... 4	(16)..... 1	(24)..... 3 .....

(25) Line #4 i^2 should be replaced with (-1) correct answer $10 + 10i$

(26) $D = (1.223)(2.652)^A$

(27) $\dfrac{1}{8} + \dfrac{1}{6} = \dfrac{1}{t_b}$ $\dfrac{6+8}{48} = \dfrac{1}{t_b} \approx 3.4$

(28) $3x^2 + 3xy + 3x^3 + y$

   $3x^3 + x^2 + 3xy + y$

   $x^2 (3x +1) + y (3x + 1)$

   $(x^2 + y)(3x + 1)$

(29)

$20\, e^{.05T} = 30 e^{.03T}$

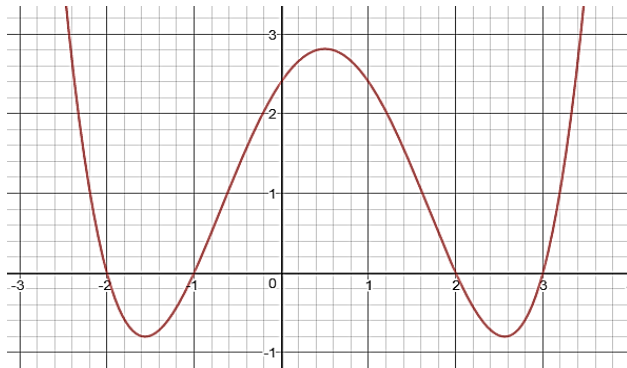$\dfrac{e^{.05T}}{e^{.03T}} = \dfrac{30}{20}$

$e^{.02T} = \dfrac{3}{2}$

$\ln e^{.02T} = \ln \dfrac{3}{2}$

$.02T = .4054651$

$T = 20.3$

(30) The minimum of q(x) = -8. (At least, from the table). The minimum of h(x) is -1. Sin(3x) has a maximum of 1 and a minimum of -1. The amplitude of 2 decreases the minimum to -2 and the vertical shift of +1 increases its minimum to -1.

(31)

(32) $81^{\frac{3}{4}} = \sqrt[4]{81^3} = 3^3 = 27$

(33) $(2x^2 + x - 3)(x - 1) - [(2x^2 + x - 3) + (x + 1)]$

$\qquad (2x^3 - 2x^2 + x^2 - x - 3x + 3) - [2x^2 + 2x - 4]$

$\qquad 2x^3 - 3x^2 - 6x + 7$

(34) P(M) + P(J) – P(M and J) = P(M or J)

$$\frac{1}{4} + \frac{116}{459} - X = \frac{47}{108}$$
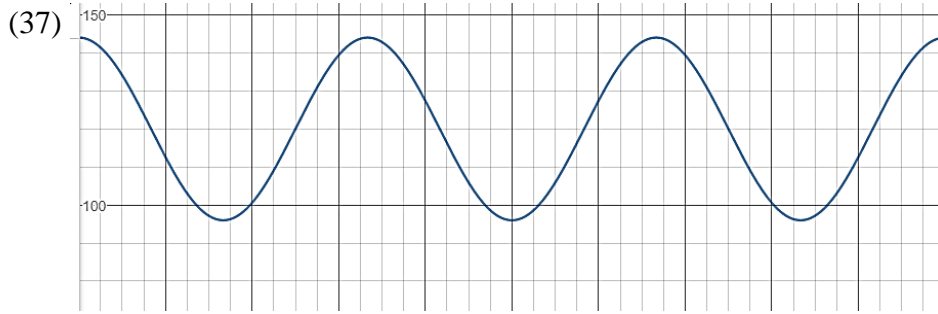
$$\frac{923}{1836} - X = \frac{47}{108}$$

$$X = \frac{31}{459} = P(M\,and\,J) \neq P(M) \bullet P(J) = \frac{1}{4} \bullet \frac{116}{459}$$

 Events are NOT independent.

(35) 138.905 + 2(7.95) = 155 $\qquad$ 138.905 – 2(7.95) = 123 interval is 123 through 155

$\qquad$ NO since 50% of 250 = 125 and 125 falls in the 95% interval.

(36) f(x) = x^2(x – 3)(x + 4) $\qquad$ g(x) = $(x+2)^2$(x – 1)(x + 6)

(37)

Max value is 144 (120 + 24) Min value is 96 (120 – 24)

$P = \dfrac{2\pi}{3\pi} = \dfrac{2}{3}$ The patients blood pressure will reach a high once every $\dfrac{2}{3}$ of a second.

High because the 144 over 96 is greater than 120 over 80.