

Alg 2 CC

Test 3 Answers

- $P_1=0$
 $P_2=1$
 $P_3=2$
 $P_4=5$

$$P_3 = 2(1) + 0 = 2$$

$$P_4 = 2(2) + 1 = 5$$

$$P_5 = 2(5) + 2 = 12$$

$$P_6 = 2(12) + 5 = 29$$

2) $\frac{76+62}{66+83+76+62}$ and $\frac{137}{286} = 23\%$

3) Choice 2

4) $8^{1/3} \cdot X^{4/3} \cdot Y^{6/3}$

$$2 \cdot X^{1/3} \cdot X^{1/3} \cdot Y^2$$

$$2XY^2 \sqrt[3]{X}$$

5) $(\sqrt{x-1} = x-7)^2$

$$x-1 = x^2 - 14x + 49$$

$$\begin{array}{r} -x+1 \quad -x+1 \\ \hline \end{array}$$

$$x^2 - 15x + 50 = 0$$

$$(x-10)(x-5) = 0$$

$x=10$ $x=5$
MUST CHECK!!

6) $-\frac{1}{2}x + 8.5 = -\frac{1}{2}(x-3)^2 + 7$

$$x - 17 = (x-3)^2 - 14$$

$$x - 17 = x^2 - 6x + 9 - 14$$

$$\begin{array}{r} -x+17 \quad -x+17 \\ \hline \end{array}$$

$$x^2 - 7x + 12 = 0$$

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

$$x=4 \quad x=3$$

$$y = -\frac{1}{2}(4) + 8.5 \quad y = -\frac{1}{2}(3) + 8.5$$

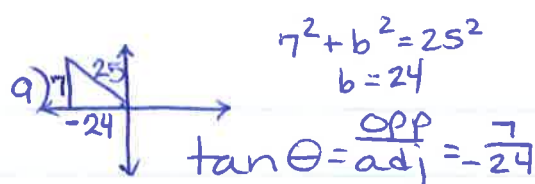
$$y = 6.5 \quad y = 7$$

$$(4, 6.5) \quad (3, 7)$$

7) Choice 3 $\sqrt{(3, 5)}$

8) normal cdf (81, 90, 72, 9)

.1359051975



10) $x^2 = 5$ $x^2 = -4$ $x^2 = -10$ $x = -3$
 4 total

11) $x + 2y - z = 3$ $E1 + E2$

$$2x + y + z = 0 \quad E1 + E3$$

$$x + 2y + z = 5 \quad \text{then } E2 + E3$$

$$\begin{array}{r} -2E1 + E2 \quad E1 - E \\ -2x - 4y + 2z = -6 \quad x + 2y - z = 3 \\ 2x + y + z = 0 \quad -x - 2y - z = -5 \\ \hline \end{array}$$

$$\begin{array}{r} -3y + 3z = -6 \quad -2z = -2 \\ \hline \end{array}$$

$$\begin{cases} x + 2y - z = 3 \\ -3y + 3z = -6 \\ z = 1 \end{cases} \quad \begin{array}{r} -2z = -2 \\ z = 1 \\ -3y + 3 = -6 \\ -3y = -9 \\ y = 3 \end{array}$$

$$x + 2(3) - 1 = 3$$

$$x + 6 - 1 = 3$$

$$x + 5 = 3$$

$$x = -2$$

12) it's decreasing w/a (-) exp.
 4,300,000 is a decreased value from 43,000 hundreds

13) $P(B|A)$ should be $P(B)$ if independent

14) $x^2 + 7x - 12 = 0$

$$x = \frac{-7 \pm \sqrt{(7)^2 - 4(1)(-12)}}{2(1)}$$

$$x = \frac{-7 \pm \sqrt{97}}{2}$$

15) $3000 = 25(2)^{4t}$ $t = 1.726722649$ years
 $\times 12 = 21$ months
 $\log(120 = 2^{4t})$
 $\log 120 = 4t \log 2$
 $(4 \log 2)$
 *need ()'s

16) enter data
 scatterplot exponential
 decay

17) $\frac{365-31}{365}$

18)
$$\begin{array}{r|rrr} 7 & 1 & -3 & -28 \\ & \downarrow & 7 & 28 \\ \hline & 1 & 4 & 0 \checkmark \\ & x-4 & & \end{array}$$

19) $A(x) = 11.90 + 4.3 \ln x$ } find when
 $B(x) = 9.17(1.109)^x$ } they intersect
 (7.9141164, 20.795187)

20) the remainder is the function
 value @ 2 $f(2) = -5$

21) $(2+i)^3$ (if needed multiply out 3 times)
 You can use calc \rightarrow a+bi mode

$2+11i$

22) $a_n = a_1(1+\frac{r}{n})^{nt}$

23) $y = -2x + 5$

$x = -2y + 5$

$\frac{x-5}{-2} = \frac{-2y}{-2}$

$g(x) = \frac{-x}{2} + \frac{5}{2}$

24)

L1	L2	$y = .4018x^2 - 1.1756x + 48.3429$
4	50	$y = 132,4037$
Since $x=2010$	6	132,000
	8	
	10	
	12	
	14	

4 years \leftarrow

25) (3,400) run a linear
 (5,280) regression
 $d(x) = 580 - 60x$

26)

$$\begin{array}{r} 4x^2 - 5x + 2 \quad \overline{) \quad -2x^2 - 5x - 1} \\ \underline{+ 8x^4 + 10x^3 + 4x^2} \\ -20x^3 + 21x^2 + 0x - 4 \\ \underline{+ 20x^2 + 25x + 10} \\ -4x^2 + 10x - 4 \\ \underline{+ 4x^2 + 5x + 2} \\ 5x - 2 \end{array}$$

$-2x^2 - 5x - 1 + \frac{5x-2}{4x^2-5x+2}$

27)
$$\begin{array}{r|rrrr} 1 & 3 & 7 & -18 & 8 \\ & \downarrow & 3 & 10 & -8 \\ \hline & 3 & 10 & -8 & 0 \\ & 3x^2 + 10x - 8 & & & \\ & (3x-2)(x+4) & & & \\ & (x-1)(3x-2)(x+4) & & & \end{array}$$

28) $x = \frac{-8 \pm \sqrt{(8)^2 - 4(4)(7)}}{2(4)}$

$x = -1 \pm \frac{\sqrt{-48}}{8} \rightarrow \frac{4i\sqrt{3}}{8}$

$x = -1 \pm \frac{i\sqrt{3}}{2}$

30) $i(4-2i) - (3+2i)(4-6i)$

$4i - 2i^2 - (12 - 10i - 12i^2)$

$4i + 2 - (24 - 10i)$

$-22 + 14i$

remember $i^2 = -1$

29) $Per = \frac{2\pi}{b}$

$Per = \frac{2\pi}{\frac{3\pi}{8}} = \frac{2\pi \cdot 8}{3\pi} = \frac{16}{3}$

$Per = \frac{16}{3} \text{ sec}$

Max = 54

Min = 30

$$31) m = \frac{18-10}{4-2} = \frac{8}{2} = 4$$

$$m = \frac{30-18}{7-4} = \frac{12}{3} = 4$$

Yes, the average rate of change is 4 miles per hour.

32)

	Bball	Soccer	Track	Totals
M	6	10	4	20
F	10	15	5	30
Totals	16	25	9	50

$$P(\text{Bball} | \text{female}) = \frac{10}{30}$$

$$P(\text{Soccer} | F) = \frac{15}{30}$$

$$P(\text{Soccer}) = \frac{25}{50}$$

$$33) |x-4| + 2 = \frac{1}{3}x + 2$$

$$|x-4| = \frac{1}{3}x$$

$$x-4 = \frac{1}{3}x \quad x-4 = -\frac{1}{3}x$$

$$-x \quad -x \quad -x \quad -x$$

$$-4 = -\frac{2}{3}x \quad -4 = -\frac{4}{3}x$$

$$-12 = -2x \quad -12 = -4x$$

$$x = 6$$

$$3 = x$$

plug in for y

$$y = \frac{1}{3}(6) + 2$$

$$y = 4$$

$$(6, 4)$$

$$x = 6$$

$$y = \frac{1}{3}(3) + 2$$

$$y = 3$$

$$(3, 3)$$

$$x = 3 \text{ from graph. } y = 11.993(10) + 186.883$$

$$y = 306.813$$

307 calories

$$34) x^4 - 25x^2 + 144$$

$$(x^2-16)(x^2-9)$$

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

If the factors were set equal to 0, they would be the x-intercepts (graph on key)

35) g(x) moves right 2 and down 3.

g(x) is odd because it is symmetric about the origin. (remember Riso and it looks the same)

36) y-int let x=0

$$y = (0+2)(0-1)(0-5)$$

$$y = (2)(-1)(-5) = 10$$

$$x+2=0 \quad x-1=0 \quad x-5=0$$

$$x = -2 \quad x = 1 \quad x = 5$$

over $-3 < x < -1$, f(x) is increasing

There are 2 relative extrema.

$$37) y = 11.993x + 186.883$$

$$r = .978$$

Strong positive correlation

$$\text{slope} = 11.993$$

every increase of 1 gram of fat = 11.993 increase of calories

$$y = 11.993(10) + 186.883$$

$$y = 306.813$$

307 calories