

Alg 2 CC

Test 1 Answers

MC

i 1) $8i^6 + 6i^5 - 5i^3 - 3i^2 - 7i - 9$ *simplified out i^4 1) 1
 $i^2 = -1$ $8i^2 + 6i - 5i^3 - 3i^2 - 7i - 9$ if possible 2) 1
 $i^3 = -i$ $-8 + 6i + 5i + 3 - 7i - 9$ *calc a+bi mode 3) 1
 $i^4 = 1$ $-14 + 4i$ 4) 2

2) ${}^3C_2 \left(\frac{1}{2}\right)^2 \left(\frac{1}{2}\right)^1$
 $3 \left(\frac{1}{4}\right) \left(\frac{1}{2}\right) = \frac{3}{8}$

3) $\sqrt[b]{x^a} = x^{\frac{a}{b}}$ $\frac{a \rightarrow \text{power}}{b \rightarrow \text{root}}$ 5) 2
 $\sqrt[4]{x^1} = x^{\frac{1}{4}}$ 6) 2

4) $4^1, 3^5, 1^{10}$ total = 8 5) $y = 4^{-2x}$ negative exp = decay 7) 1
 $P(5) \frac{3}{8} \cdot \frac{1}{7} + \frac{1}{8} \cdot \frac{3}{7} = \frac{6}{56}$ 8) 4
 9) 1

$P(2) \frac{4}{8} \cdot \frac{3}{7} = \frac{12}{56}$ 10) 3

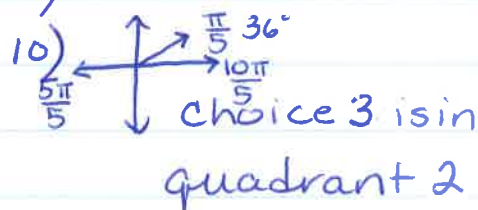
6) $x^2 + y^2 = 1$ $y = (x+1)$
 $x^2 + (x+1)^2 = 1$
 $x^2 + x^2 + 2x + 1 = 1$
 $2x^2 + 2x = 0$
 $2x(x+1) = 0$

7) $(x-5)^2 = -9$ $\sqrt{(x-5)^2} = \sqrt{-9}$ 11) 2
 $x^2 - 10x + 25 = -9$ $x - 5 = \pm 3i$ 12) 4
 $\frac{-25 \quad -25}{x^2 - 10x = -34}$ 13) 3
 14) 1

$x = 0$ $x = -1$
 $y = 1$ $y = 0$

9) choice 1 16) 3

8) $(-4, -6)$ $(1, -6)$
 $(x+5, y)$ right +5 17) 4
 $f(x-5)$ 18) 1
 19) 4
 20) 4



11) $x^2(x+3) - 9(x+3)$ 12) 15% ↓ means 21) 2
 $(x^2 - 9)(x+3)$ 85% remains 22) 4
 $(x-3)(x+3)(x+3)$ 23) 2
 $(x-3)(x+3)^2$

13) $(4^2 - 5^2)^2 + (2(4)(5))^2 = (4^2 + 5^2)^2$ 14) 42
 $(-9)^2 + (40)^2 = (41)^2$ $\frac{-8 \quad +8}{34 \quad 50}$
 *unlikely

$$15) \frac{20}{t^2+1} \leq 2$$

$$\frac{20}{-20} = \frac{2t^2+2}{-20}$$

$$0 = 2t^2 - 18$$

$$2(t^2 - 9) = 0$$

$$2(t-3)(t+3) = 0$$

$$\textcircled{t=3} \quad t \neq -3$$

$$16) \frac{186}{(186+145+52)} = \frac{186}{383} = 49\%$$

$$17) \frac{5x^2}{5} = -30$$

$$\sqrt{x^2} = \sqrt{-6}$$

$$x = \pm i\sqrt{6}$$

$$18) 3D \ 8G$$

$$\frac{3}{11} \cdot \frac{3}{11} = \frac{9}{121}$$

19) $\downarrow \downarrow$ even exponent
with a negative L.C.

20) the 7 is not
an outlier

$$21) y = -.836x + 9.078$$

$$0 = -.836x + 9.078$$

$$\frac{-9.078}{-.836} = -.836x \quad x = 10.85885167$$

11 years to
pay off

$$22) \text{Focus} = (8, 16)$$

$$23) f(x) = 2(.7)^{-x}$$

$$f(1) = 2(.7)^{-1} = 2.85714$$

$$f(2) = 2(.7)^{-2} = 4.08163$$

$$\frac{4.08163 - 2.85714}{2.85714} = 42.857\%$$

$$k + \frac{1}{4a} - 16 = k - \frac{1}{4a} + 8$$

$$-\frac{1}{4a} - \frac{1}{4a} = -8$$

$$y = k - \frac{1}{4a}$$

Vertex Midpt of
(8, 16) and (8, -8)
vertex (8, 4)

$$g(x)$$

$$\frac{-8-0}{4--2}$$

$$\frac{-8}{6} = -\frac{4}{3}$$

$$h(x)$$

$$\begin{matrix} x=-2 & y=8 \\ x=4 & y=18 \end{matrix}$$

$$\frac{18-8}{4--2} = \frac{10}{6} = \frac{5}{3}$$

$$m(x)$$

$$\begin{matrix} x=-2 & y=-10 \\ x=4 & y=0 \end{matrix}$$

$$\frac{0--10}{4--2} = \frac{10}{6} = \frac{5}{3}$$

$$\frac{2}{4a} = 24$$

$$\frac{96a}{96} = 2$$

$$a = \frac{1}{48} \quad 24)$$

$$25) p = \left(1 + \frac{.06}{12}\right) = 1.005$$

$$A = \frac{180000(1.005)^{12(15)}(1-1.005)}{(1-1.005)^{12(15)}} = \$1519$$

$$26) -16t^2 + 64t + 192 = 0$$

-16

$$t^2 - 4t - 12 = 0$$

$$(t-6)(t+2) = 0$$

$$t = 6 \quad t = -2$$

By setting the equation = to 0 the height is 0 and you can solve the quadratic for time. The balloon will hit the ground in 6 seconds.

27) y (predicted)

0 6

1 10 The point (5,50) is an outlier

2 19 and would impact the

3 34 regression.

4 62

5 113

6 208

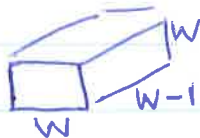
$$28) c(n) = 3.75n$$

29) Explanation on key

$$\{0 \leq n \leq 500\}$$

$$\{0 \leq c(n) \leq 1875\}$$

30)



$$w(w-1)(w+5) = 20$$

$$w(w^2 + 4w - 5) = 20$$

$$w^3 + 4w^2 - 5w - 20 = 0$$

$$w^2(w+4) - 5(w+4) = 0$$

$$(w^2 - 5)(w+4) = 0$$

$$w^2 - 5 = 0 \quad w \neq -4$$

$$\sqrt{w^2} = \sqrt{5}$$

$$w = \pm\sqrt{5}$$

$$\text{width} = \sqrt{5} =$$

$$\text{length} = 5 + \sqrt{5} =$$

- 31) a) Decay because the rate is < 1 .
 b) $A_0 = 280$ = the amount she borrowed.
 c) $r = 1 - .88 = .12$
 12% means that every year she pays of 12% of the loan.

32) $\left(\frac{3}{x-3} = \frac{1}{x-1} + \frac{7}{(x-1)(x-3)} \right) (x-1)(x-3)$

$$3(x-1) = 1(x-3) + 7$$

$$3x - 3 = x - 3 + 7$$

$$3x - 3 = x + 4$$

$$\begin{array}{r} -x + 3 \\ -x + 3 \\ \hline \end{array}$$

$$2x = 7$$

$$x = 3.5$$

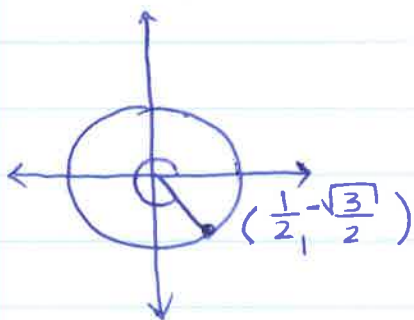
33) a) $y = 26.02 \sin(.49x - 1.86) + 58.85$

b) $y = 26.02 \sin(.49(9) - 1.86) + 58.85$

$y = 73$ degrees

c) 1 degree below the actual

34)



one example

$$-\frac{\pi}{3}$$

35) a) $\frac{63}{110}$ b) $\frac{1}{110}$ c) $\frac{39}{110} + \frac{9}{110} = \frac{48}{110}$ d) $P(\text{Avg} > 70 | \text{HW85-100})$

$$\frac{37}{39}$$

36)

$$\begin{array}{r} x^2 + 5x + 4 \quad R-5 \\ x+2 \overline{) x^3 + 7x^2 + 14x + 3} \\ \underline{-(x^3 + 2x^2)} \\ 5x^2 + 14x + 3 \\ \underline{-(5x^2 + 10x)} \\ 4x + 3 \\ \underline{-(4x + 8)} \\ -5 \end{array}$$

$x+2$ is not a factor

because it does not divide evenly, there is a remainder.

37) $\text{Per} = \frac{2\pi}{\frac{\pi}{6}} \cdot \frac{6}{\pi} = 12$ months, the temperatures will recycle every 12 months

midline $y=50$ average temperature for the year
amplitude 40 the temperature fluctuates 40 degrees from the average