

Name _____

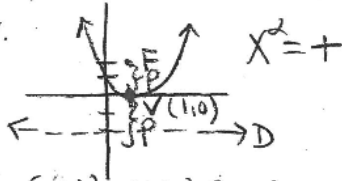
Review # 3

June 2017 Regents

Due: Wed. 5/30/19

Work must be shown for each question in order to receive credit.

17.



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

$$(x-1)^2 = 8y \rightarrow y = \frac{1}{8}(x-1)^2$$

4 2

$$x \cdot \frac{(x-2)2x}{x-2} - \frac{11x(x-2)}{x} = \frac{8}{x(x-2)} \cdot x(x-2)$$

$$2x^2 - 11(x-2) = 8$$

$$2x^2 - 11x + 22 = 8$$

$$2x^2 - 11x + 14 = 0$$

$$2x^2 - 4x - 7x + 14 = 0$$

$$2x(x-2) - 7(x-2) = 0$$

$$(x-2)(2x-7) = 0$$

$$x=2 \quad 2x=7$$

$$\text{reject } x = \frac{7}{2}$$

1 3

21.

Avg. rate of change = slope

$$f(-7) = 2^{-.25(-7)} \sin\left(\frac{\pi}{2}(-7)\right) = 3.36$$

$$f(-7) = 2^{-.25(-7)} \sin\left(\frac{\pi}{2}(-7)\right) = -30$$

adian mode

$$\frac{3.36 - (-30)}{-7 - 7} = -26$$

3 3

23.

$$-3x^2 - 5x + 2$$

$$= -3x^2 - 6x + 1x + 2$$

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

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

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

$$= -3x^{-1} + x^{-2}$$

OR: STORE
button
type in
what they
gave you +
each choice.
see what matches

4 2

18.

$$p(t) = 110e^{.03922t}$$

$$p(t) = 110(1.039999258)^t$$

Starting population = 110
in 2010

b > 1: increase

$$1.039999 = 1+r$$

$$.039999 = r$$

$$r = 3.9999\%$$

$$a_1, a_2, a_3, a_4$$

$$-8, -7.25, -6.5, -5.75, \dots$$

$$+1.75, +1.75, +1.75$$

or plug

ans. into y =

Look at table

to see if term

matches

value at that

term.

$$f(n) = a_1 + d(n-1)$$

$$f(n) = -8 + 1.75(n-1)$$

$$= -8 + 1.75n - 1.75$$

$$= -8.75 + 1.75n$$

22.

$$\text{Total Cost for } n \text{ years: } c(n) = 329.99 + 108.78(n)$$

$$\text{For per yr: } c(n) = \frac{329.99 + 108.78(n)}{n}$$

3 3

24.

3% interest = geometric

$$S = \frac{a_1 - a_1 r^n}{1-r}$$

$$= 100 - 100 \left(1 + \frac{.03}{12}\right)^{12(1)}$$

$$1 - \frac{.03}{12}$$

Since it's compounded

monthly - want

be 1.03 →

eliminate

1 + 4

They want the

sum → choice 3

is for individual

value → choice 2

$$\begin{aligned}
 31. \quad & \sqrt[3]{x} \cdot \sqrt{x} \\
 &= x^{1/3} \cdot x^{1/2} \\
 &= x^{2/6} \cdot x^{3/6} \\
 &= x^{5/6}
 \end{aligned}$$

32.

$$\begin{aligned}
 P(\text{jogs} | 1 \text{ sibling jogs}) &= \frac{416}{2239} \\
 &= .1858
 \end{aligned}$$

$$\begin{aligned}
 P(\text{jogs} | 2 \text{ siblings jog}) &= \frac{400}{1780} \\
 &= .2247
 \end{aligned}$$

$\therefore$ More likely to jog if both siblings jog.

$$\begin{aligned}
 37. 1) \quad A &= 140 \left(\frac{1}{2}\right)^{\frac{5}{h}} \\
 \frac{100}{140} &= \frac{140 \left(\frac{1}{2}\right)^{\frac{5}{h}}}{140} \\
 \frac{5}{7} &= \left(\frac{1}{2}\right)^{\frac{5}{h}} \\
 \frac{\log\left(\frac{5}{7}\right)}{\log\left(\frac{1}{2}\right)} &= \frac{\frac{5}{h} \log\left(\frac{1}{2}\right)}{\log\left(\frac{1}{2}\right)}
 \end{aligned}$$

$$h \cdot .4854268272 = \frac{5}{h}$$

$$h = \frac{5}{.4854268272}$$

$$2) h = 10.3002$$

$$\begin{aligned}
 3) \quad \frac{40}{140} &= \frac{140 \left(\frac{1}{2}\right)^{\frac{t}{10.3002}}}{140} \\
 \frac{2}{7} &= \left(\frac{1}{2}\right)^{\frac{t}{10.3002}}
 \end{aligned}$$

$$\frac{\log\left(\frac{2}{7}\right)}{\log\left(\frac{1}{2}\right)} = \frac{\frac{t}{10.3002} \log\left(\frac{1}{2}\right)}{\log\left(\frac{1}{2}\right)}$$

$$(10.3002) \cdot .807354922 = \frac{t}{10.3002}$$

$$t = 18.6$$