

Name key

June 2018 Regents

Review # 8
Due: Fri. 6/6/19

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

9. $\frac{2}{x} - \frac{3x}{x+3} = \frac{x}{x+3}$ $x \neq 0, -3$
 $\frac{2}{x} = \frac{4x}{x+3}$
 $2(x+3) = 4x^2$
 $4x^2 - 2x - 6 = 0$
 $2x^2 - x - 3 = 0$
 $(2x-3)(x+1) = 0$
 $x = \frac{3}{2} \quad x = -1$
 OR
 $y_1 = \frac{2}{x} - \frac{3x}{x+3}$
 $y_2 = \frac{x}{x+3}$
use Ask

4 4

10. window
 $x: [0, 18]$
 $y: [0, 20]$
 mode: Radians

Type in each choice.

11. $P(A \cap B) = P(A) \cdot P(B)$
 $= (48)(.25)$
 $= .12$
 $\therefore 12\%$

4 3

12. $P(1) = 0$ if $x-1$ is a factor
 $1^3 - K(1)^2 + 2(1) = 0$
 $1 - K + 2 = 0$
 $K = 3$

13. $P(x) = r(x) - c(x)$
 $\therefore c(x) = r(x) - P(x)$
 $c(x) = -.3x^2 + 150x - (-.5x^2 + 250x - 300)$
 $= -.3x^2 + 150x + .5x^2 - 250x + 300$
 $= .2x^2 - 100x + 300$

1 1

14. Jonesville: $P(t) = 1240(1.06)^t$
 Williamstown: $P(t) = 890(1.11)^t$
 $y_1 = \text{Jonesville}$
 $y_2 = \text{Williamstown}$
 Ask - 7 is the closest.

15. ① $y = x^3 - 2$
 ② $x = y^3 - 2$
 ③ $x + 2 = y^3$
 $\sqrt[3]{x+2} = y$
 ④ $f^{-1}(x) = \sqrt[3]{x+2}$

3 2

16. Hits x-axis at -5 and 3 only
 $\times \quad 2 \quad \times \quad \times$
 hits more than twice hits @ -3 and 5 hits more than twice

28. example:
Not everyone who
sees the sign will call

30. $a_1 = 3$ $a_3 = 1 + 2(7) = 15$
 $a_2 = 1 + 2(3) = 7$ $a_4 = 1 + 2(15) = 31$

NO. Geometric means multiplier.

$a_2 = a_1 r$ $a_3 = a_2 r$

$\frac{7}{2} = r$ $\frac{15}{7} = r$

$\frac{7}{2} \neq \frac{15}{7} \therefore$ not Geometric

35. $C(t) = 63000 \left(1 + \frac{0.255}{12}\right)^{12t}$

$100000 = 63000(1.002125)^{12t}$

$\frac{100}{63} = (1.002125)^{12t}$

$\log_{1.002125} \frac{100}{63} = 12t$

OR

$\log \frac{100}{63} = 12t \log 1.002125$

$t \sim 18.14$ years

29.
$$\begin{array}{r} 2a^2 + 5a + 2 \\ 3a-2 \overline{) 6a^3 + 11a^2 - 4a - 9} \\ \underline{-6a^3 + 4a^2} \\ 15a^2 - 4a \\ \underline{-15a^2 + 10a} \\ 6a - 9 \\ \underline{-6a + 4} \\ -5 \end{array}$$

Aside:

$2a^2(3a-2) = 6a^3 - 4a^2$

$5a(3a-2) = 15a^2 - 10a$

$2(3a-2) = 6a - 4$

$\left\{ 2a^2 + 5a + 2 + \frac{-5}{3a-2} \right\}$

36. Radian Mode:

$h(1) = 14$

$h(2) = 2$

$\frac{2-14}{2-1} = -12$

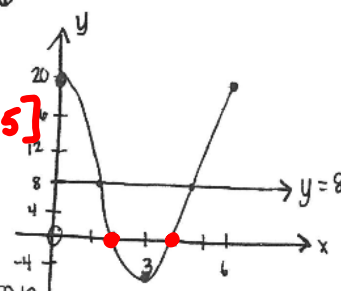
Range: $[-12, 12] + 8 \rightarrow [-4, 20]$

Per: $\frac{2\pi}{\frac{\pi}{3}} = 6$

window

$x: [0, 6]$ **[1, 5]**

$y: [-4, 20]$



on calculator

2nd Trace Zero:

2.2 seconds

3.8 seconds