

Name _____

Review # 2

June 2017 Regents

Due: Tues. 5/29/19

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

9. $R(x) = x \cdot S(x)$

$$= x(30 - 0.01x)$$

$$= 30x - 0.01x^2$$

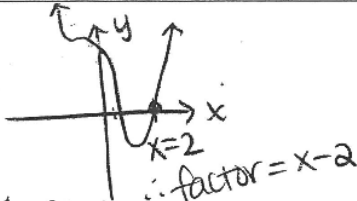
$$P(x) = 30x - 0.01x^2 - (0.15x^3 + 0.01x^2 + 2x + 120)$$

$$= -0.15x^3 - 0.02x^2 + 28x - 120$$

2 3

10. $\frac{1}{6} = .16 \approx .2$ landing on 6
Simulation is centered around .2
 $\therefore$ not unfair (eliminates 1+2)
miles lost 10 times $\rightarrow$ getting 0
It's expected to get no 0's 6's
 $\sim 20\%$ of the time $\therefore$ choice 3

11.



x. with remainder Thm:

$$P(2) = 2^4 - 4(2)^3 - 4(2) + 8 = 0 \checkmark$$

1 2

12. $\sin^2(\theta) + \cos^2(\theta) = 1$

$$\left(-\frac{\sqrt{2}}{5}\right)^2 + \cos^2(\theta) = 1$$

$$\frac{2}{25} + \cos^2(\theta) = 1$$

$$\cos^2(\theta) = \frac{23}{25}$$

$$\cos(\theta) = \pm \frac{\sqrt{23}}{5}$$

1 2

13.

$$(.75)^{10} = (.75)^{1/10}$$

$$= (.9716)$$

3 2

14. Can have blue eyes + blonde hair
 $\therefore$ not mutually exclusive

Indep: $P(\text{Blue eyes} \cap \text{Blonde}) \neq P(\text{Blue eyes}) \cdot P(\text{Blonde})$

Never dependent $.125 \neq .25(.5)$

$.125 = .125 \therefore$ Independent

15.

1.) Range $P(x): [-23.914, 23.914]$

$P(x): [20.238, 20.238]$

2.) Midline $B(x): 55.300$

$P(x): 86.729$

3.) max $B(x): 23.914 + 55.300 = 79.214$

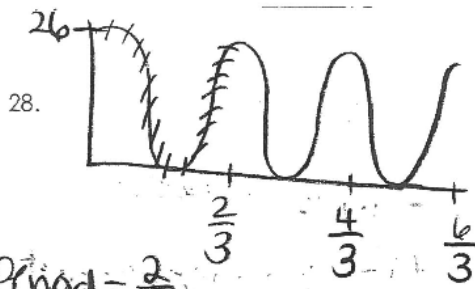
4 4

4.) min $P(x) = -20.238 + 86.729$
 $= 66.491$

16. I. $\frac{x^{1/6}}{x^{1/3}} = x^{-1/6} = \frac{1}{x^{1/6}} = \frac{1}{\sqrt[6]{x}}$

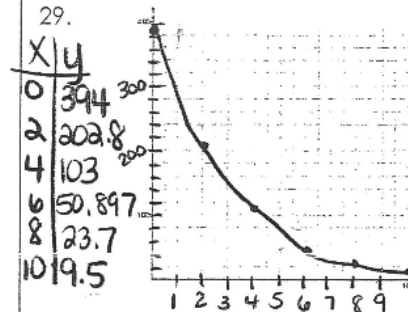
II. $\frac{x^{1/6}}{x^{1/3}}$

III. $x^{-1/6}$



$$\text{Period} = \frac{2}{3}$$

The wheel rotates once every $\frac{2}{3}$ Second



30. $\sqrt{x-4} + x = 6$ CK:

$$(\sqrt{x-4})^2 = (6-x)^2$$

$$x-4 = 36 - 6x + 6x + x^2$$

$$x-4 = x^2 - 12x + 36$$

$$0 = x^2 - 13x + 40$$

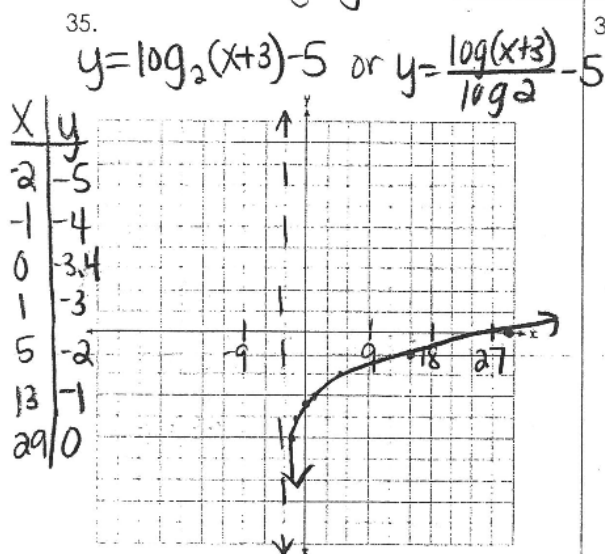
$$0 = (x-8)(x-5)$$

$$x=8 \quad x=5$$

Check:

$x=8$: $\sqrt{8-4} + 8 \stackrel{?}{=} 6$
 $2 + 8 \stackrel{?}{=} 6$
 $10 \neq 6$

$x=5$: $\sqrt{5-4} + 5 \stackrel{?}{=} 6$
 $1 + 5 \stackrel{?}{=} 6$
 $6 = 6 \checkmark$



36. $\text{est} \pm \text{ME}$

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

$$= (.35, .66)$$

32.5% falls below the 95% confidence interval