

Name: _____

Algebra II CP Final Exam Review Packet

Calculator Questions

1. Solve: $4^{3x} + 2 = 3$ (Sec. 7.5)

$$4^{3x} = 1$$
$$\log 4^{3x} = \log 1$$

$$3x \cdot \log 4 = \log 1$$
$$3x = \frac{\log 1}{\log 4}$$

$$3x = 0$$
$$x = 0$$

2. List a pair of coterminal angles. (Sec. 13.2)

$$50^\circ, 410^\circ$$

3. If y varies inversely with x , and $y = 12$ when $x = 2$, find y when $x = 0.3$. (Sec. 6.7)

$$y = \frac{k}{x}$$

$$12 = \frac{k}{2}$$

$$y = \frac{24}{.3}$$

$$24 = k$$

$$y = 80$$

4. Solve the system of equations using any method of your choice. (Sec. 3.2)

$$\begin{cases} x = 2y + 3 \\ 3x + y = -5 \end{cases}$$

$$3(2y + 3) + y = -5$$

$$6y + 9 + y = -5$$

$$7y + 9 = -5$$

$$7y = -14$$

$$y = -2$$

$$(-1, -2)$$

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

$$x = -1$$

5. Solve the system of equations using any method of your choice. (Sec. 3.2)

$$\begin{cases} 2x + 3y = 4 \\ 4x + 6y = 9 \end{cases}$$

$$\begin{array}{r} -4x - 6y = -8 \\ 4x + 6y = 9 \\ \hline 0 = -1 \end{array}$$

False \therefore no solution

(If true then infinite solutions)

6. Two fair number cubes are rolled. State whether the events are mutually exclusive. (Sec. 11.3)

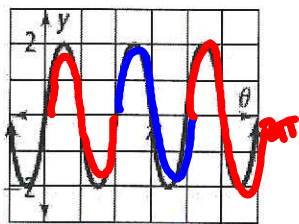
a. The sum is a prime number; the sum is less than 4 *no*

b. The numbers are equal; the sum is odd. *yes*

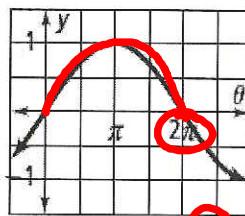
c. The product is greater than 20; the product is a multiple of 3. *no*

\rightarrow Cannot occur at the same time

7. Determine the number of cycles each sine function has in the interval from 0 to 2π . Find the amplitude and period of each function



Cycles: 3
amp: 2
P: $\frac{2\pi}{3}$



Cycles: $\frac{1}{2}$
amp: 1
P: $\frac{2\pi}{\frac{1}{2}} = 4\pi$

P: $\frac{2\pi}{b}$
b = #cycles in 2π

8. The equation $h = -16t^2 + 32t + 9$ gives the height of a ball after t seconds. When will the ball reach its maximum height? What is the maximum height?

(Sec. 4.2)

max height is vertex so use calc to find max (1, 25) \therefore max 25 ft

by hand

$$x = \frac{-b}{2a} \quad x = \frac{-32}{2(-16)} = 1$$

$$h = -16(1)^2 + 32(1) + 9$$

$$h = 25$$



9. Solve with the quadratic formula. (Sec. 4.7)

$$2x^2 - 6x + 3 = 0$$

$$x = \frac{6 \pm \sqrt{(-6)^2 - 4(2)(3)}}{2(2)}$$

$$x = \frac{6 \pm \sqrt{12}}{4}$$

$$x = \frac{6}{4} \pm \frac{2\sqrt{3}}{4}$$

$$x = \frac{6 \pm \sqrt{36 - 24}}{4}$$

$$x = \frac{6 \pm 2\sqrt{3}}{4}$$

$$x = \frac{3}{2} \pm \frac{\sqrt{3}}{2}$$

10. Simplify each expression. (Sec. 4.8)

a. $\sqrt{-64}$

$$\sqrt{-1 \cdot 64}$$

$$8i$$

b. $(9 + 7i) - (6 - 2i)$

$$9 + 7i - 6 + 2i$$

$$3 + 9i$$

c. $(1 - 9i)(3 + 2i)$

$$3 + 2i - 27i - 18i^2$$

$$3 - 25i + 18$$

$$21 - 25i$$

11. Divide the polynomials using long division. (Sec. 5.4)

$$(x^3 + 7x^2 + 15x + 9) \div (x + 1)$$

$$x+1 \overline{) x^3 + 7x^2 + 15x + 9}$$

$$-(x^3 + x^2)$$

$$6x^2 + 15x$$

$$-(6x^2 + 6x)$$

$$9x + 9$$

$$\begin{array}{r} -1 \overline{) 7 \ 15 \ 9} \\ \underline{-1 \ -6 \ -9} \\ 1x \ 6x \ 9 \ 0 \end{array}$$