

1. Solve for x  $\sqrt{2x-3} = x+1$

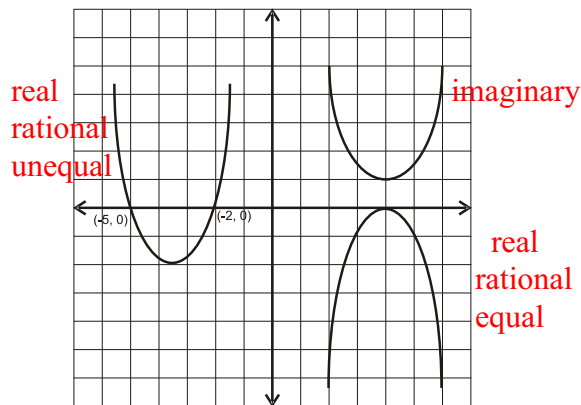
$$2x + 3 = (x + 1)^2$$

$$x^2 = -4$$

$$x = \pm 2i$$

2. Find the exact value of  $\cos 210^\circ$ .

3. Label each parabola below based on the nature of the roots of its quadratic equation. (e. g. real, rational, equal)



4. What is the domain of the function

$$y = \frac{x+2}{\sqrt{x+4}} ?$$

$$\{x \mid x > -4, x \in \text{Real Numbers}\}$$

5. Evaluate  $\sum_{1}^3 2x^3 - 1$

$$1 + 15 + 53 = 69$$

6. Rationalize the denominator:  $\frac{6}{3-\sqrt{3}}$

$$\frac{6(3+\sqrt{3})}{6} = 3 + \sqrt{3}$$

7. Find the solution set for  $|4x - 2| = 12$

$$4x - 2 = 12$$

$$x = 3.5$$

$$4x - 2 = -12$$

$$x = -2.5$$

8. Find the quadratic equation whose roots are  $6 + i$  and  $6 - i$

$$\text{sum} = 12 \quad \text{product} = 37$$

$$x^2 - 12x + 37 = 0$$

9. Jessica averages 3 hits for every 5 at bats she gets. What is the probability that she will get at least 2 hits in her next 3 at bats?

$${}^3C_2 \left(\frac{3}{5}\right)^2 \left(\frac{2}{5}\right)^1 = \frac{54}{125}$$

$${}^3C_3 \left(\frac{3}{5}\right)^3 \left(\frac{2}{5}\right)^0 = \frac{27}{125}$$

$$\frac{81}{125}$$

10. Reduce:  $\frac{x^2 + x - 6}{x^2 - 9}$

$$\frac{x-2}{x-3}$$

11. If  $\cot x < 0$  and  $\sec x > 0$ , in which quadrant does  $x$  lie?

tan negative      cosine positive

quadrant IV

12. Simplify:  $3i^2 + i(4i - i^3)$

$$-3 + 4i^2 - i^4$$

$$-8$$

13. Express  $330^\circ$  in radian measure

$$\frac{330}{1} \cdot \frac{\pi}{180} = \frac{11\pi}{6}$$

14. In a circle a central angle of  $60^\circ$  intercepts an arc whose length is  $\frac{2\pi}{3}$  radians. Find the length of the radius.

$$60^\circ = \frac{\pi}{3}$$

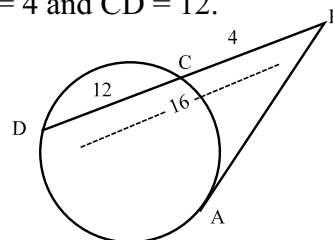
$$\frac{2\pi}{3} = \frac{r\pi}{3}$$

$$r = 2\pi$$

15. For a study 500 people were chosen to take a general knowledge test. If the mean score was 77 and the standard deviation was 3, how many students scored less than 74 on the test?

$$.16(500) = 80$$

16. Find AB in the diagram below where  $BC = 4$  and  $CD = 12$ .



$$4(16) = x^2$$

$$8 = x$$