Calculus ABC Test I—Version 3127 **Name:** _____

Lecture section: _____ **Student Number:** _____

PUT ANSWERS IN BOXES. NO BOOKS/NOTES/CALCULATORS. DO YOUR OWN WORK. Simplify answers where possible. Include units where needed. All angles are in radians. $\log = \log_{10}$.

1. Simplify by combining using a common denominator:

$$\frac{y}{(y+1)^2} + \frac{2}{y+1}$$

2. Simplify by combining using a common denominator:

$$\frac{t}{t-4} - \frac{3}{t+6}$$

3. Solve for x:

$$x^2 = 5$$

4. Solve for x:

$$\sqrt{2x+2} - 6 = 0$$

5. Solve for x:

$$\frac{4}{x} \leq x$$

6. Find the equation of the line with x-intercept -3 and y-intercept -1 in *slope-intercept* form.

7. Find all roots of: $2y^2 + 7y + 3 = 0$

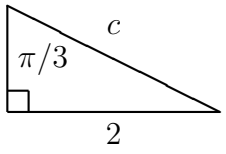
8. Find the value of:

$$\cos\left(\frac{4\pi}{3}\right)$$

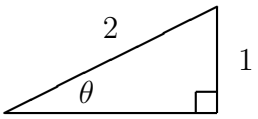
9. Find the value of:

$$\tan\left(\frac{4\pi}{3}\right)$$

10. Find the value of c:



11. Find the value of $\tan(\theta)$:



12. Graph the function $y = \cos(x)$ for $-\pi \leq x \leq \pi$.
Label with the following values (if applicable): each intercept, location of each asymptote, and (x, y) coordinates of each min and max.

13. Simplify and eliminate any negative exponents:

$$\left(8x^6\right)^{-2/3}$$

14. Simplify:

$$\left(\frac{25}{64}\right)^{3/2}$$

15. Solve for t (write answer as a rational number):

$$\left(\frac{1}{10}\right)^{5-2t} = 100$$

16. Solve for x:

$$5^{3-x} = 4$$

17. Graph the equation $2x - y = 5$.
Label with the following values (if applicable): each intercept, slope, and (x, y) coordinates of vertex.

18. Graph the function $y = x^2 + 4$.
Label with the following values (if applicable): each intercept, slope, and (x, y) coordinates of vertex.

19. Find the area of a circle which has circumference 5 feet.

20. Find the volume of a sphere of radius 3 cm.