Calculus ABC Test I—Version 2877 **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:

$$\frac{1}{x} - \frac{1}{x-1}$$

2. Simplify as far as you can:

$$\frac{5t-15}{3t-9}$$

3. Solve for x:

$$\sqrt{x} - 5 = 7$$

4. Solve for t:

$$1 + \frac{3}{t} = 2$$

5. Solve for x:

$$-2x^2 \leq 4$$

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

7. Find all roots of: $2x^2 - x = 0$

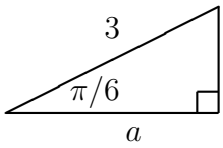
8. Find the value of:

$$\tan\left(\frac{5\pi}{6}\right)$$

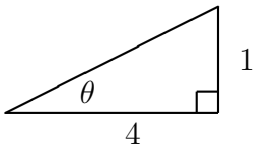
9. Find the value of:

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

10. Find the value of a:



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



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:

$$\frac{(x^2y^3)^4(xy^4)^{-3}}{x^2y}$$

14. Simplify:

$$x^4x^5$$

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

$$3^{4y+1} = 27$$

16. Solve for x:

$$5^{x-3} = 8$$

17. Graph the equation $x - y = 4$.
Label with the following values (if applicable): each intercept, slope, and (x, y) coordinates of vertex.

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

19. Find the area of a sector of a circle of radius 4 feet swept by the angle $5\pi/6$ radians.

20. Find the volume of a right circular cylinder (a can) with diameter 2 inches and height 3 inches.