Calculus ABC Test I—Version 9860 **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:

$$\frac{x}{x^2-4} + \frac{1}{x-2}$$

2. Simplify by combining using a common denominator:

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

3. Solve for t:

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

4. Solve for x:

$$\frac{1}{5} + \frac{3}{2x} = \frac{17}{10x}$$

5. Solve for x:

$$4x + 7 \leq 19$$

6. Find the equation of the line through the point (-1,2) and parallel to the line $x - 2y = 6$ in *slope-intercept* form.

7. Factor: $x^2 + 2x - 15$

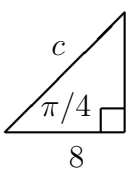
8. Find the value of:

$$\cos(0)$$

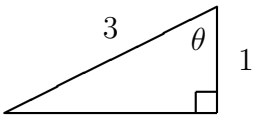
9. Find the value of:

$$\cos\left(\frac{\pi}{6}\right)$$

10. Find the value of c:



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



12. Graph the function $y = \tan(x)$ 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:

$$\frac{10^7}{10^4}$$

14. Simplify:

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

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

$$9^{2x-1} = 3$$

16. Solve for x:

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

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

18. Graph the function $y = 3 + 3x^2$.
Label with the following values (if applicable): each intercept, slope, and (x, y) coordinates of vertex.

19. Find the circumference of a circle which has radius 1 meter.

20. Find the volume of a sphere of radius 1 meter.