Calculus ABC Test I—Version 2673 **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 as far as you can:

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

2. Simplify by combining using a common denominator:

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

3. Solve for t:

$$\frac{1}{t-2} = 1 + \frac{2}{t^2 - 2t}$$

4. Solve for x:

$$\frac{x+2}{x-3} = 5$$

5. Solve for r:

$$|2r - 4| \geq 8$$

6. Find the equation of the line with x-intercept 2 and y-intercept -3 in *point-slope* form.

7. Find all roots of: $x^2 - 3x - 28 = 0$

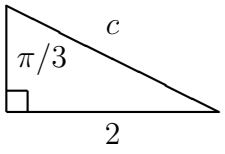
8. Find the value of:

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

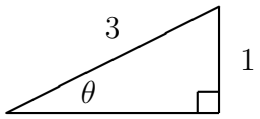
9. Find the value of:

$$\cos(0)$$

10. Find the value of c:



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



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

$$(-125)^{-1/3}$$

14. Simplify:

$$\left(x^2\right)^3$$

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

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

16. Solve for y:

$$2^{4y-3} = 12$$

17. Graph the equation $-x + y = 1$.
Label with the following values (if applicable): each intercept, slope, and (x, y) coordinates of vertex.

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

19. Find the perimeter of a rectangle which has length 6 inches and width 3 inches.

20. Find the volume of a right circular cylinder (a can) with radius 5 cm and height 5 cm.