Calculus ABC Test I—Version 6908 **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:

$$\frac{5y}{4} - \frac{3y}{4}$$

2. Simplify by combining using a common denominator:

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

3. Solve for x:

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

4. Solve for z:

$$z^2 = 25$$

5. Solve for y:

$$|3y + 4| > 10$$

6. Find the equation of the line between the points $(0, 1)$ and $(1, 2)$ in *point-slope* form.

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

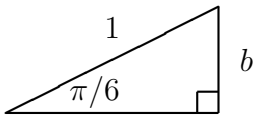
8. Find the value of:

$$\tan(\pi)$$

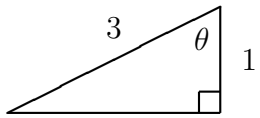
9. Find the value of:

$$\sin\left(\frac{5\pi}{3}\right)$$

10. Find the value of b:



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



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:

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

14. Simplify and eliminate any negative exponents:

$$\frac{y^{-7}}{y^4}$$

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

$$9^{t+2} = 3$$

16. Solve for x:

$$2^{3x} = 64$$

17. Graph the function $y = -2x + 1$.
Label with the following values (if applicable): each intercept, slope, and (x, y) coordinates of vertex.

18. Graph the function $y = 3x^2 - 6$.
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 diameter 6 inches.

20. Find the volume of a rectangular box with sides 2 cm, 3 cm, and 5 cm.