Calculus ABC Test I—Version 4720 **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:

$$\frac{6x-5}{3x^2} - \frac{6}{9x}$$

2. Simplify by combining using a common denominator:

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

3. Solve for x:

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

4. Solve for x:

$$x + \frac{9}{x} = 6$$

5. Solve for x:

$$|x+1| \geq 3$$

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

7. Find all roots of: $2x^2 - 4x = 0$

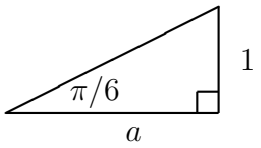
8. Find the value of:

$$\sin\left(\frac{7\pi}{6}\right)$$

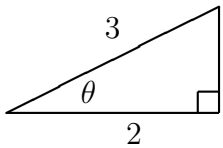
9. Find the value of:

$$\sin\left(\frac{11\pi}{6}\right)$$

10. Find the value of a:



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



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 and eliminate any negative exponents:

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

14. Simplify and eliminate any negative exponents:

$$\left(b^{2/5}\right)^{-3/4}$$

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

$$8^x = 16$$

16. Solve for t:

$$10^{3t} = 8$$

17. Graph the equation $-x + y = 0$.
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 circle which has radius 2 meters.

20. Find the volume of a right circular cylinder (a can) with diameter 4 meters and height 6 meters.