Calculus ABC Test I—Version 778 **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:

$$\frac{17x}{8} - \frac{7x}{8}$$

2. Simplify as far as you can:

$$\frac{y+1}{y^2+5y+4}$$

3. Solve for x:

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

4. Solve for t:

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

5. Solve for x:

$$\tfrac{1}{2}x - \tfrac{2}{3} > 2$$

6. Find the equation of the line through the point (1,7) with slope 1 in *slope-intercept* form.

7. Factor: $2t^2 - t - 1$

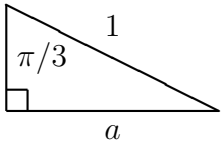
8. Find the value of:

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

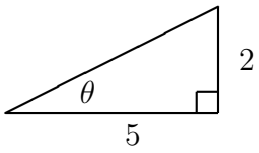
9. Find the value of:

$$\tan\left(\frac{2\pi}{3}\right)$$

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:

$$\left(\frac{4}{9}\right)^{-1/2}$$

14. Simplify and eliminate any negative exponents:

$$\left(x^2y^3\right)^{-1/3}$$

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

$$8^x = 16$$

16. Solve for x:

$$5^{3-x} = 4$$

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

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

19. Find the area of a triangle which has base 2 mm and height 5 mm.

20. Find the volume of a sphere of radius 3 cm.