Calculus ABC Test I—Version 4440 **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:

$$\frac{3}{2a+3} + \frac{2a}{2a+3}$$

2. Simplify by combining using a common denominator:

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

3. Solve for y:

$$\frac{6}{y-4} + 6 = \frac{1}{3}$$

4. Solve for t:

$$2t^2 = 5t$$

5. Solve for x:

$$4 \leq 3x - 2 < 13$$

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

7. Factor: $t^2 - 5t - 24$

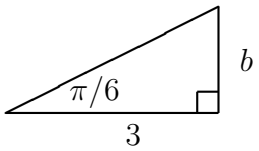
8. Find the value of:

$$\sin\left(\frac{5\pi}{6}\right)$$

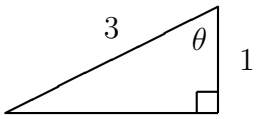
9. Find the value of:

$$\tan\left(\frac{7\pi}{4}\right)$$

10. Find the value of b:



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



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 and eliminate any negative exponents:

$$\frac{x^{-3}}{x^{-5}}$$

14. Simplify and eliminate any negative exponents:

$$a^9 a^{-5}$$

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

$$32^{3r} = 2$$

16. Solve for x:

$$\left(\frac{1}{4}\right)^x = 75$$

17. Graph the equation $2x + y = 4$.
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 10 miles and height 13 miles.

20. Find the volume of a rectangular box with sides 4 meters, 3 meters, and 8 meters.