Calculus ABC Test I—Version 9980 **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:

$$\frac{x-2}{x^2-4}$$

2. Simplify by combining using a common denominator:

$$\frac{y}{1-y} + \frac{2}{y-1}$$

3. Solve for t:

$$2t^2 = 5t$$

4. Solve for x:

$$x^2 = 6x$$

5. Solve for x:

$$\frac{3+x}{3-x} \geq 1$$

6. Find the equation of the line with x-intercept -3 and y-intercept -1 in *point-slope* form.

7. Factor: $x^2 + 2x - 8$

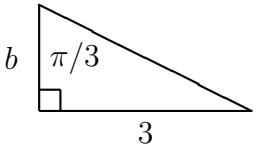
8. Find the value of:

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

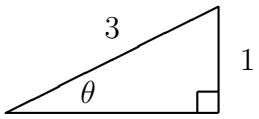
9. Find the value of:

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

10. Find the value of b:



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



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:

$$\frac{10^7}{10^4}$$

14. Simplify and eliminate any negative exponents:

$$\frac{(x^2y^3)^4(xy^4)^{-3}}{x^2y}$$

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

$$27^y = \frac{1}{9}$$

16. Solve for x:

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

17. Graph the function $y = -x + 3$.
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 triangle which has base 8 miles and height 4 miles.

20. Find the volume of a right circular cylinder (a can) with radius 6 cm and height 3 cm.