Calculus ABC Test I—Version 1234 **Name:** key

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:

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

$x-2$

2. Simplify by combining using a common denominator:

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

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

3. Solve for y:

$$\frac{y}{2}-2=\frac{y}{3}$$

$y=12$

4. Solve for t:

$$2t-1=-\sqrt{2-t}$$

$t=-1/4$

5. Solve for r:

$$|2r-4|\geq 8$$

$(-\infty,-2]\cup[6,\infty)$

6. Find the equation of the line through the point (0,0) and parallel to the line $-x+2y=6$ in *point-slope* form.

$y-0=\frac{1}{2}(x-0)$

7. Factor: t^2-5t+6

$(t-2)(t-3)$

8. Find the value of:

$$\sin(\pi)$$

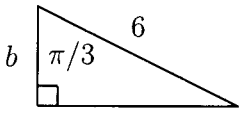
0

9. Find the value of:

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

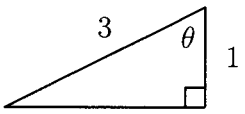
-1

10. Find the value of b:



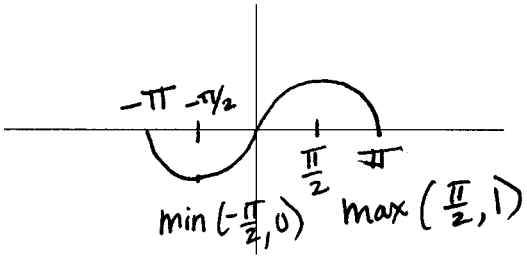
$b=3$

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



$\frac{1}{\sqrt{8}} = \frac{\sqrt{8}}{8}$

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:

$$\frac{(6y^3)^4}{2y^5}$$

$3 \cdot 6^3 y^7 = 648y^7$

14. Simplify:

$$\left(3x^2\right)^3$$

$27x^6$

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

$$25^{2x+1} = 5$$

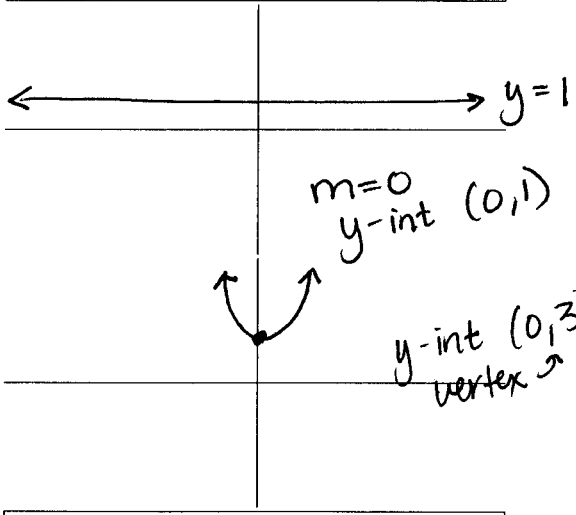
$x = -1/4$

16. Solve for x:

$$5^{x-3} = 8$$

$x = 3 + \log_5 8$

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



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

19. Find the perimeter of a triangle with sides of length 8 meters, 6 meters, and 7 meters.

21 meters

20. Find the volume of a sphere of radius 10 feet.

$\frac{4000}{3}\pi$ ft^3