Calculus ABC Test I—Version 2681 **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 as far as you can:

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

3. Solve for x:

$$\frac{x-2}{5} = \frac{x+4}{20}$$

4. Solve for x:

$$\frac{4}{3x} = \frac{5}{6} + \frac{1}{2x}$$

5. Solve for x:

$$\tfrac{1}{2} + x \leq \tfrac{5}{6}$$

6. Find the equation of the line through the point (-2,4) with slope -2 in *slope-intercept* form.

7. Find all roots of: $5x^2 - 17x - 12 = 0$

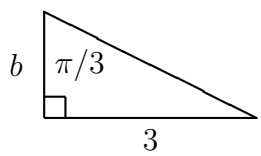
8. Find the value of:

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

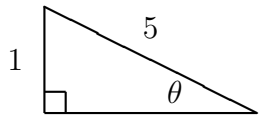
9. Find the value of:

$$\cos(0)$$

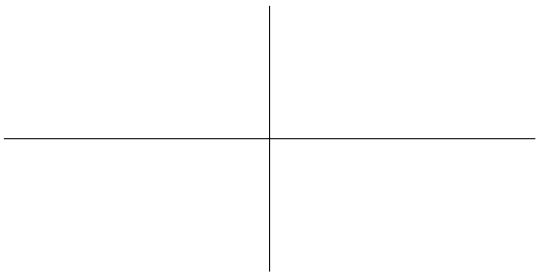
10. Find the value of b:



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



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:

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

14. Simplify and eliminate any negative exponents:

$$\left(8x^6\right)^{-2/3}$$

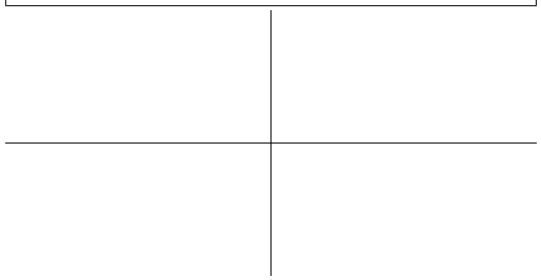
15. Solve for r (write answer as a rational number):

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

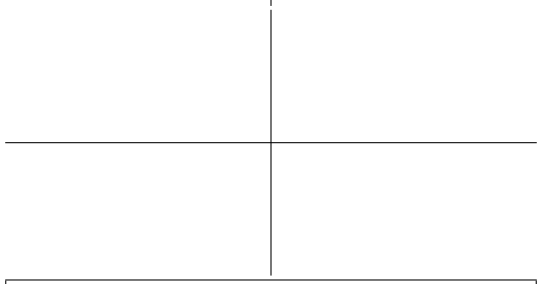
16. Solve for y:

$$2^{4y-3} = 12$$

17. Graph the equation $2x + y = 5$.
Label with the following values (if applicable): each intercept, slope, and (x, y) coordinates of vertex.



18. Graph the function $y = x^2 + 3x$.
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 inches, 7 inches, and 7 inches.