1. Evaluate the expression $a^2b - 2a$ when a = -1 and b = 3.

2. Solve the equation $V = \frac{1}{3}\pi r^2$ for r.

3. Write an equation to model each scenario:

    a. You have $45 in an account and spend $5 each week on coffee.

    b. Your car is currently worth $4000 and loses 12% in value each year.

    c. The booster club sold hotdogs for $2 each and drinks for $1.50 each, making a total of $400.

4. Write an inequality to model the following scenario: You have $10 and need to make at least $120 by the end of the summer. Each week you make $55 mowing lawns.

5. Solve the inequality, and graph the solution on a number line: $-3 \leq 5 - 2x < 7$

6. What is the volume of a cylinder with a radius of 12cm and a height of 1m?

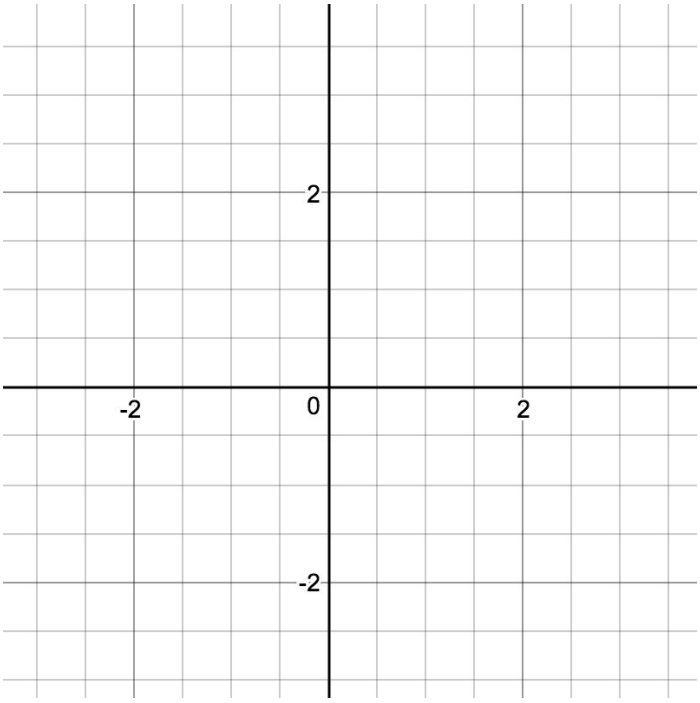
7. Find all solutions for each equation:

    a. $x^2 - x - 10 = 0$

    b. $2x^3 + 16x = 2x^2$

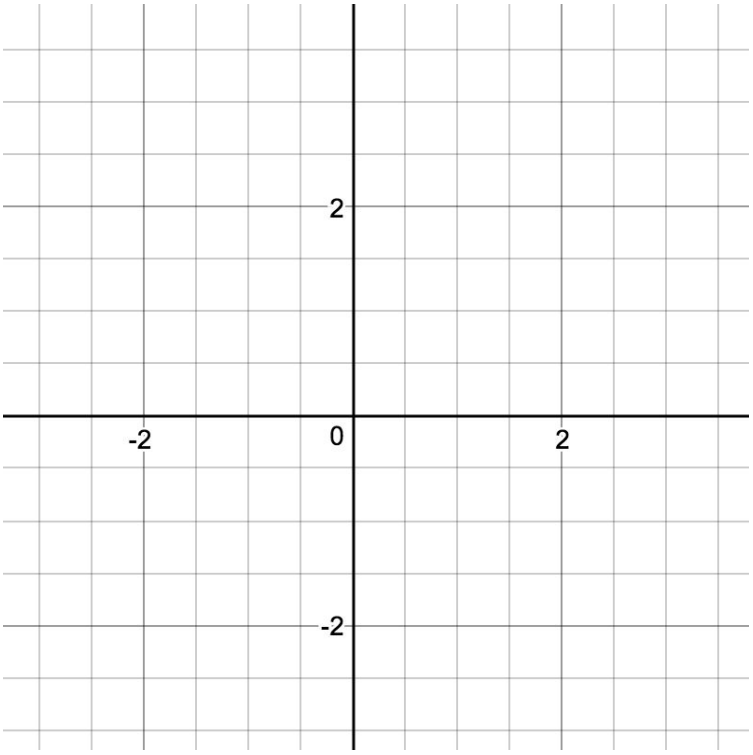
    c. $4x - x^2 = -5$

8. Find the solution of the system of equations graphically, using the graph space provided.



$2y - 4x = 2$
$x = -y + 2$

9. Graph the system of inequalities and clearly indicate where the solution region is:



$y <- x$
$y \geq \frac{1}{3}x + \frac{1}{2}$

10. The twenty-five students in Ms. Henning's class score an average of 81% on the final. Leia's score of 95% is then removed from the class average. What is the new average score?

11. Simplify each of the following expressions:

    a. $\sqrt{32x^3y}$

    b. $\sqrt[3]{27a^5b^9}$

    c. $\sqrt{3}(2\sqrt{6}+\sqrt{42})$

    d. $\sqrt{\frac{9}{32}}$

12. Evaluate each trigonometric expression:

    a. $cos(\frac{\pi}{6})$

    b. $sin(-\frac{\pi}{3})$

    c. $tan(\frac{\pi}{2})$

    d. $sec(\frac{\pi}{6})$

13. Perform each complex number operation and simplify completely:

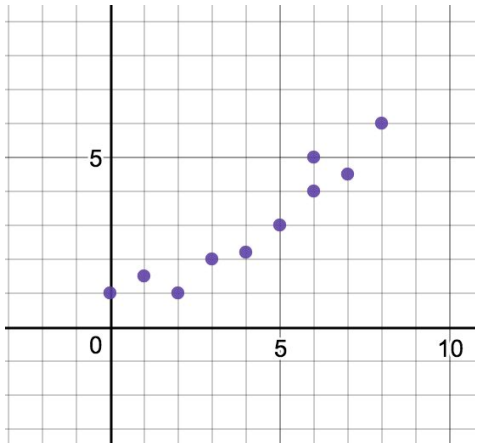
    a. $(2i)^2$

    b. $(3-i)(2+i)$

    c. $i^5(2i-7)$

14. Mark each set of congruent angles in the diagram below, given that *l* and *w* are parallel and *n* is a transversal.

15. Explain the correlation shown in the scatter plot (strong positive, strong negative, weak positive, none, etc.):



16. If the volume of a sphere is 589 ft^3, what is the radius of the sphere?

17. Draw a reasonable graph for the function $f(x) = \frac{x-2}{x^2-4}$. Include all relevant asymptotes.