

Name: _____

Date: _____

Practice Problems for Honors Math 2 Placement Test. Guidelines: All of these problems should be done without the aid of a calculator and should not take longer than an hour to complete.

1. Simplify: $5y^2z + 3xy^2 - 2y^2z$

2. Solve for x: $6 - 3(x - 5) = 7 - 10x$

3. Solve for x: $-5x + 4 \leq 34$

4. For equation below, state if it was solved correctly or at what step the error was made (if error then solve correctly). Circle letter A, B, C, D, or E and if an error was made, solve correctly.

$$5(x - 2) - 4 = 2(x + 3) - 11$$

A. solution is correct

Step 1: $5x - 10 - 4 = 2x + 6 - 11$

B. Error is step 1

Step 2: $5x - 6 = 2x + 17$

C. Error in step 2

Step 3: $3x = 23$

D. Error in step 3

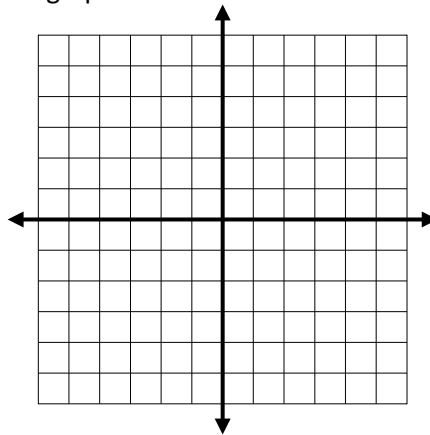
Step 4: $x = \frac{23}{3}$

E. Error in step 4

5. For $y = \left(\frac{1}{4}\right)x + 1$ state the slope and y-intercept then graph the line.

Slope _____

y-intercept _____

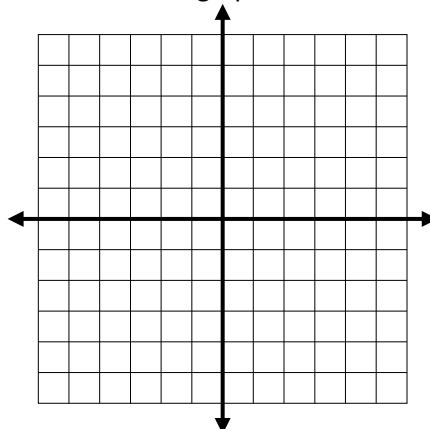


6. For $y - 2 = -3(x + 1)$ state the slope and a point on the line and graph the line.

Slope _____

Point on line _____

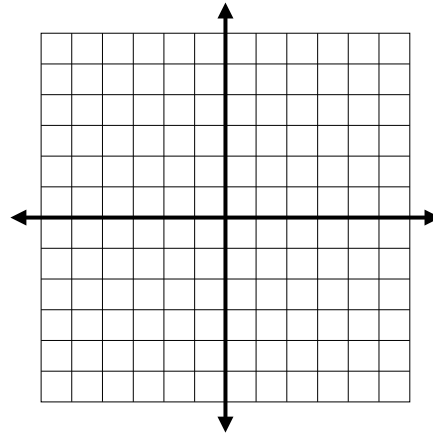
Find:
y-intercept _____



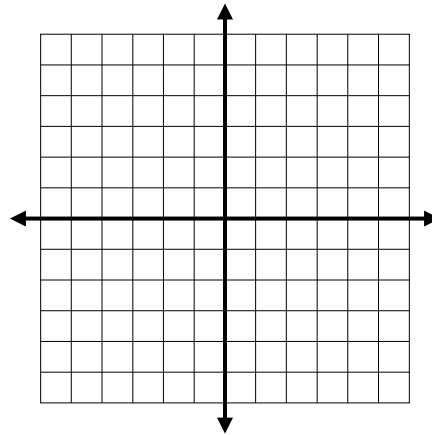
7. Change $y - 2 = -3(x + 1)$ to slope and y intercept form, that is $y = mx + b$.
 State the slope and y intercept.
 Graph the line using the slope and y intercept.

Slope _____

y-intercept _____



8. Graph $2x - 3y > 15$



9. Write a function that would work to represent all the values in the table.

A.

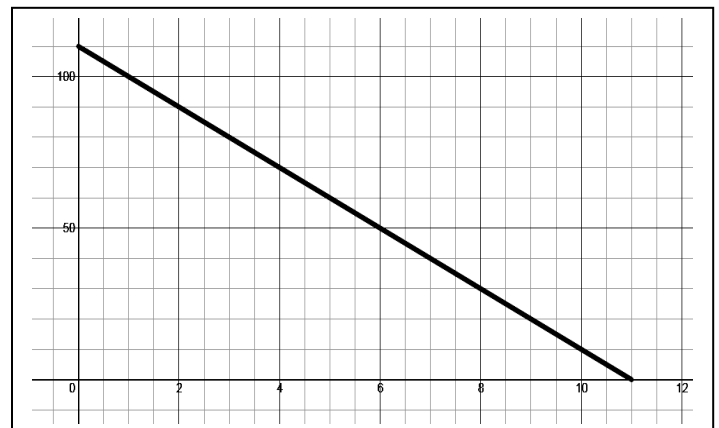
x	0	1	2	3	4
$f(x)$	5	5	5	5	5

B.

x	0	1	2	3	4
$f(x)$	5	6	7	8	9

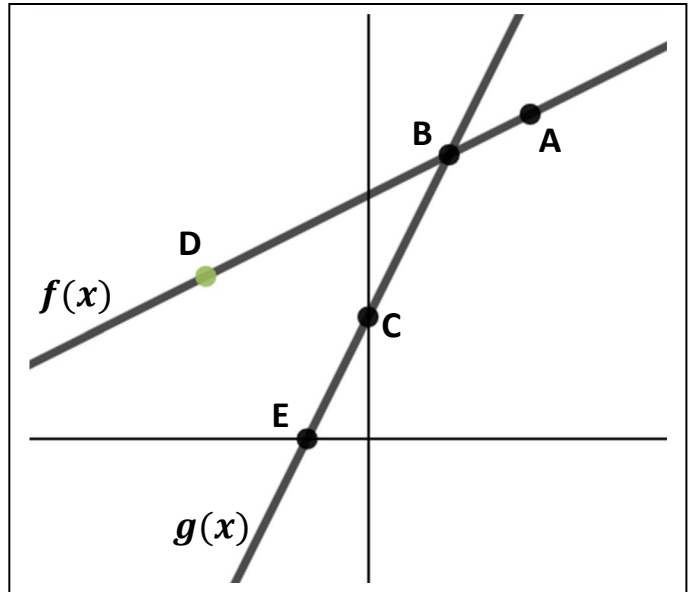
10. The amount of water in a tank, in gallons, is a function of time, in hours, shown at the right. State is the statement is **true or false**.

- A. The tank is empty in 11 hours. _____
- B. The maximum amount of water in the tank is 11 gal. _____
- C. The maximum amount of water in the tank is 110 gal. _____
- D. The rate of change in the amount of water in the tank is decreasing at 10 gal per hour. _____
- E. At time 6 hours there is 50 gal in the tank. _____
- F. At time 90 hours there is 2 gal in the tank. _____

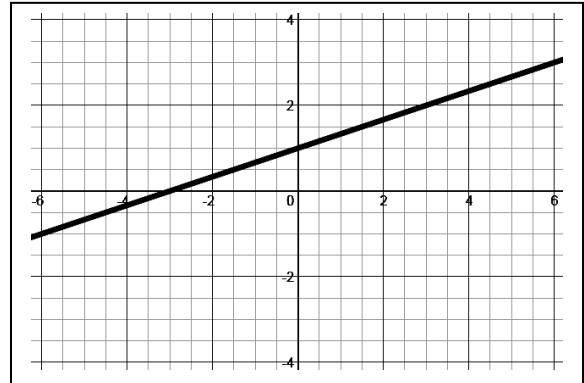


11. For the graph at the right, state whether the Statement is **TRUE** or **FALSE**.

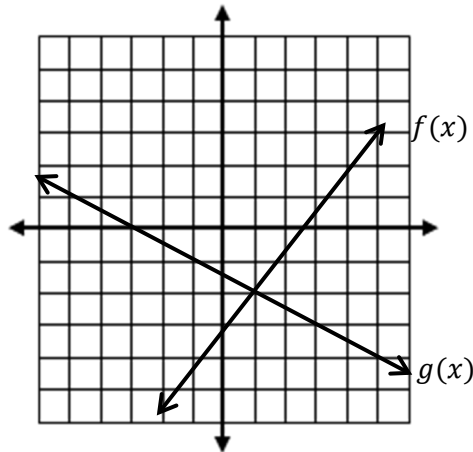
- A. A, B, and D are solutions of $f(x)$. _____
- B. B is the solution of $f(x) = g(x)$. _____
- C. C is the y intercept of $f(x)$. _____
- D. D is on $f(x)$ when $f(x) > g(x)$. _____
- E. E is the x intercept of $g(x)$. _____
- F. A is on $f(x)$ when $f(x) < g(x)$. _____
- G. There is an infinite number of points and solutions on $f(x)$ even though there are only three points labeled. _____



12. The graph of $f(x)$ is shown. Determine the ordered pair that is a solution to the equation represented by $f(x) = 0$.



13. Is the statement true or false?
- a. $f(x) < g(x)$ when $x < 1$
 - b. $f(x) < g(x)$ when $x > 1$
 - c. $f(x) > g(x)$ when $x > 1$
 - d. $f(x) > g(x)$ when $x < 1$
 - e. $f(x) = g(x)$ when $x = 1$
 - f. $f(x) = g(x)$ when $x = -2$



14. Solve for x : $\frac{1}{4}x + \frac{1}{3}x = \frac{7}{4}$

15. Solve the inequality for x : $6(x - 10) > 30$

16. Solve the inequality for x : $3x - 2(x - 5) < 7(x + 4)$

17. Solve for x : $\frac{x}{12} = \frac{-5}{3}$

18. Solve for x : $\frac{-7}{x} = \frac{3}{4}$

19. Rewrite the expression in terms of a singular base to an exponent: $3^5 \times 3^5 =$

20. Simplify: $\left(\frac{1}{3} + \frac{1}{5} + \frac{1}{15}\right)^{-1}$

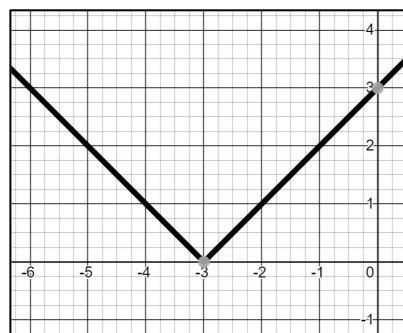
21. If 3 students have an average of \$20 each, and 2 other students have an average of \$10 each, then what is the average of amount of money per student?

22. A straight line that passes through the points $(2, 3)$ and $(3, 1)$ must also pass through the point

- A. $(5, 4)$
- B. $(4, 5)$
- C. $(4, 0)$
- D. $(4, -1)$

23. Simplify: $1^7 + 1^7 =$

24. a. Give the domain where the graph is *increasing*.
b. Give the domain where the graph is *decreasing*.



25. Simplify: $2 + 3(6 - 1)^2 \div 7$

26. Simplify: $\frac{2}{3} - \frac{1}{2}\left(\frac{1}{3}\right)^2$

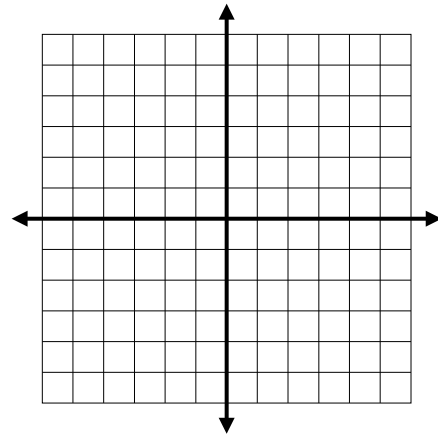
27. Simplify: $|-b|$

28. For $5x + 2y = 10$, find the x and y intercepts.

29. Change $5x + 2y = 10$ to slope and y intercept form, that is $y = mx + b$.
State the slope and y intercept. Graph the line using the slope and y intercept.

Slope _____

Y-intercept _____



30. Solve $x + 2y = -7$ and $-2x + y = 6$ algebraically and graphically.

