Name: _____ Date: _____

Linear Equations and Inequalities

1. The sum of 38 and twice a number is 124. Find the number.

$38 + 2x = 124$ $\quad -38 \quad -38$ $\quad \frac{2x}{2} = \frac{86}{2}$ $\quad x = 43$

2. Find three consecutive integers whose sum is 171.

56, 57, 58

3. Find four consecutive even integers whose sum is 244.

$x + (x+2) + (x+4) + (x+6) = 244$ $\quad x = 58$

$4x + 12 = 244$ $\quad -12 \quad -12$ $\quad \frac{4x}{4} = \frac{232}{4}$

$x = 58$, $x+2 = 60$, $x+4 = 62$, $x+6 = 64$

4. A rectangle is 12m longer than it is wide. Its perimeter is 68m. Find its length and width.

width = 11 m
length = 23 m

5. You are trying to save $30 a week to buy a new CD player. During the last 4 weeks you have saved $45, $35, $10, and $52. How much do you need to save this week to average $30 for the 5 weeks?

$\frac{45+35+10+52+x}{5} = 30 \cdot 5$

$142 + x = 150$ $\quad -142 \quad -142$

$x = \$8$

You must save $8

6. On an algebra test, the highest grade was 14 points higher than the lowest grade. The sum of the two grades was 172. Find the lowest grade.

Lowest grade: 79

7. When 8 is added to four times a number, the result is 80. Find the number.

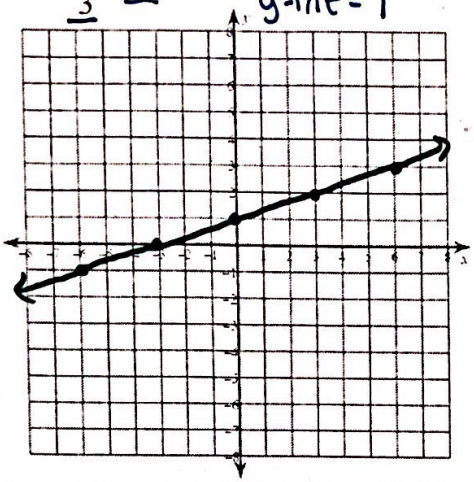
$8 + 4x = 80$ $\quad -8 \quad -8$ $\quad \frac{4x}{4} = \frac{72}{4}$ $\quad x = 18$

8. The width of a rectangle is 8 inches more than the length and the perimeter is at least 60 inches. What are the smallest possible dimensions for the rectangle?

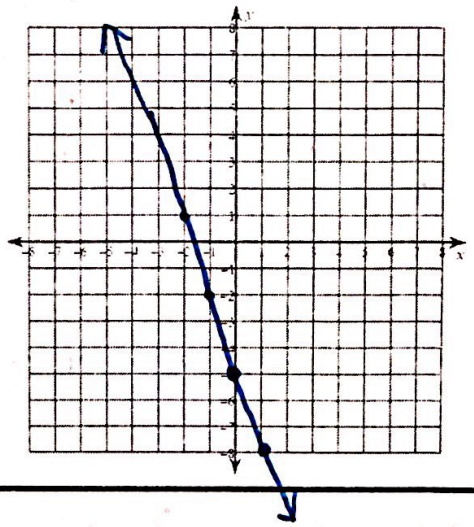
11 in × 19 in

Graph

9. $y = \frac{1}{3}x + 1$ slope = $\frac{1}{3}$, y-int = 1



10. $y = -3x - 5$



Review

11. Write the verbal expression for one-third a number squared. $\frac{1}{3}x^2$

12. Translate the algebraic expression to a verbal expression $6^2 - 2x$ 6 squared decreased by twice a number

Solve

13. $20 = 4x - 6x$

$\frac{20}{-2} = \frac{-2x}{-2}$

$x = -10$

14. $\frac{2+3x}{4} = 8$

$x = 10$

15. $\frac{x}{2} \times \frac{7}{10}$ $\frac{10x}{10} = \frac{14}{10}$

$x = \frac{7}{5}$ or 1.4

Solve each for the indicated variable

16. $2x + 3y = -12$ for **y**

$y = -\frac{2}{3}x - 4$

17. $A = \frac{Bh}{2}$ for **h**

$2 \cdot A = \frac{Bh}{2} \cdot 2$

$\frac{2A}{B} = \frac{Bh}{B}$ $h = \frac{2A}{B}$

18. $P = 2L + 2W$ for L

$L = \frac{P}{2} - W$

19. Solve for **x**: $2x + 3y - 12 = 0$ $+12 - 3y$ → $\frac{2x}{2} = \frac{-3y}{2} + \frac{12}{2}$

A. $y = -\frac{2}{3}x + 4$ B. $x = \frac{3}{2}x - 6$ C. $x = \frac{3}{2}x + 6$ (D.) $x = -\frac{3}{2}x + 6$

20. Solve the equation: $6(1 - 2m) - 4(m + 1) = 50$

(A.) −3 B. 3 C. 2 D. 5

21. What is the constant? $15x^4 - 9x^3 + 7x^2 - x + 11$

A. 15 B. −9 C. −1 (D.) 11

22. Which of the following is **NOT** a verbal expression for $13 - x$

A. The difference of 13 and a number
B. 13 decreased by a number
C. A number less than 13
(D.) A number take away 13