SEW Review 1

1. Solve. Simplify your answer as much as possible.

$-21 = -\frac{3}{7}w$ $\quad$ $78 - u = 168$ $\quad$ $3y - 8 = -20$ $\quad$ $-2 = \frac{3x - 23}{4}$ $\quad$ $23 + 18y = -21 + 14y$

$-5u - 18 = -2(u - 6)$ $\quad$ $\frac{w}{3} + 4 = \frac{w}{2}$ $\quad$ $-\frac{3}{2} = -\frac{2}{7}u - \frac{9}{5}$ $\quad$ $9 = \frac{9y + 5}{8} + \frac{y - 6}{2}$

$\frac{w - 4}{5} - \frac{w + 1}{3} = 1$ $\quad$ $3(w - 2) - 5w = -2(w + 3)$ $\quad$ $5(2 - v) + 7v = 2(v + 1)$

2. Solve for L. $\quad 4LW = V$

   Solve for B. $\quad A = 4B + C$

   Solve for x. $\quad y = (x - 8)m$

3. A house was increased in value by 34% since it was purchased. The current value is \$335,000. What was the value when it was purchased?

4. A TV has a listed price of \$503.98 before tax. If sales tax is 7.5%, find the total cost of the TV with sales tax included.

5. The perimeter of a rectangle is 132 feet. If the length is represented by $5y$ and the width by $4y + 3$, find the length and width in feet.

6. Solve the inequality. Graph your solution and write it in interval notation.

   $-4u + 37 \leq 13$ $\quad$ $8w - 40 > -3(4 - 5w)$ $\quad$ $-12 \leq 4x + 4 < 16$

7. Solve the following absolute value equations or inequalities. For the inequalities, graph your solutions and write your solutions in interval notation.

   $|6v - 3| = 9$ $\quad$ $|4u + 2| - 35 = -5$ $\quad$ $|5v - 9| = |5v + 4|$

   $|4x + 4| \leq 8$ $\quad$ $|u - 2| > 6$

8. Find the x-intercept and y-intercept for the following, and then use them to graph the functions.

   $2x + 4y = -8$ $\qquad\qquad$ $y = -\frac{1}{4}x + 2$

9. Find the slope and y-intercept, then graph.

   $-3x - 5y = -15$ $\qquad\qquad$ $-3x + 4y = -20$

10. Find an equation for the line described. You can leave your answer in point-slope form or slope-intercept form.

    Line passing through the points $(-9, -6)$ and $(-4, 5)$.

    Line passing through $(-8, 2)$ with a slope of $-\frac{5}{4}$.

    Line passing through $(9, 6)$ and parallel to the line $y = \frac{3}{2}x$.

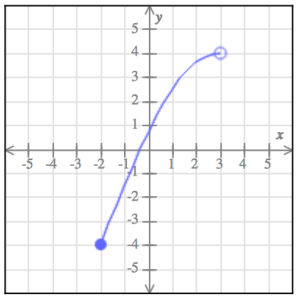
    Line passing through the origin and perpendicular to the line $y = \frac{3}{2}$.

11. Owners of a recreation area are filling a small pond with water at a rate of 35 liters per minute. There are 700 liters in the pond when they begin.

    Let W represent the amount of water in the pond (in liters), and let T represent the number of minutes the water has been added.

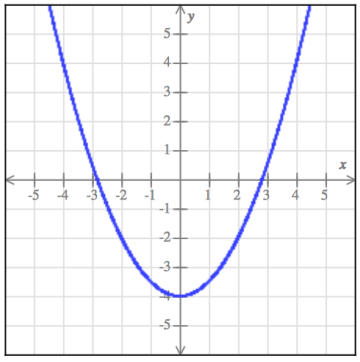
    Write an equation relating W to T, and the graph your equation.

12. The entire graph of the function h is shown in the figure below. Write the domain and range of h using interval notation.



13. The graph of a function f is shown below.

    Find $f(2)$ and find one value of x for which $f(x) = -3$.



14. Find the domain of the function, and write your solution in interval notation.

$g(x) = \sqrt{x-4}$ $f(x) = \sqrt{-x+9}$ $h(x) = \sqrt{2x-3}$

15. Solve the following system of equations.

$y = 3x - 4$ $6x + 9y = -3$ $7x - 2y = -9$

$4x + 3y = 27$ $6x + 5y = 9$ $4x - 5y = -9$

16. A jet travels 1464 miles against the wind in 2 hours, and it travels 1704 miles with the wind in the same amount of time. What is the rate of the jet in still air, and what is the rate of the wind?

17. Hong bought a desktop computer and a laptop. Before financing charges, the laptop cost \$400 less than the desktop. He paid for the computers using two different financing plans. For the desktop, the interest rate was 7.5% per year, and for the laptop, it was 8% per year. The total finance charge for one year was \$371. How much did each computer cost before finance charges?

18. Simplify as much as possible. Leave your answers with only positive exponents.

$2y^5v^5 \cdot 4v^4 \cdot 6y$ $(-7ab^3)^2$ $\left(\dfrac{-4a}{b^3}\right)^3$ $(-x^3z^4)^2(2x^2y^3z)$ $\dfrac{6u^4v^2}{18uv^2}$ $(-9)^{-2}$

$\left(\dfrac{4m^4}{3m^7n^2}\right)^2$ $4v^{-4}$ $(-3w^4x^{-2})^3$ $\dfrac{36x^{-4}y^3z^{-2}}{6y^{-5}z^6}$ $\left(\dfrac{2x^{-3}u}{z^{-2}}\right)^3 (x^2z^{-1})$

19. Factor.

$2w^3 + 5w^2 + 14w + 35$ $ux - 7x - 3u + 21$ $y^2 - 10y + 16$ $y^2 - 14y + 49$ $w^2 - 36$

$4y^2 - 28y + 48$ $3y^2 - 4y - 7$ $3y^2 - 4y - 20$ $27w^3 - 48w$ $32u^2 - 2u^2v^4$

20. Solve.

$3y^2 - 18y = 0$ $u^2 - 10u + 21 = 0$ $5w^2 = -17w - 6$