9.5 Classwork: Rounding and functions

1. Do Now: Which expressions are equivalent to $3\sqrt{5} + \sqrt{5}$?

   - ☐ $\sqrt{5} + \sqrt{5} + \sqrt{5} + \sqrt{5}$
   - ☐ $\sqrt{8} + \sqrt{5}$
   - ☐ $3\sqrt{10}$
   - ☐ $(3 + 1)\sqrt{5}$
   - ☐ $\sqrt{3}\sqrt{5}$

Function substitution

2. (a) Given $f(x) = 4x + 7$.
   Simplify $f(2)$.

   (b) Given $g(x) = \frac{3}{2}x - 5$.
   Simplify $g(4)$.

   (c) Given $h(x) = x^2 - 4x + 1$.
   Simplify $h(0)$.

   (d) Given $j(x) = x - 11$.
   Find x such that $j(x) = 5$.

Rounding

3. (a) Round to the *nearest hundredth*
   15.944732

   (b) Round to the *nearest thousandth*
   $\sqrt{2}$

   (c) Round to the *nearest hundredth*
   $\theta = \frac{\pi}{3}$

   (d) Round to the *nearest tenth*
   $\alpha = \frac{3}{2}\pi$

   (e) Round to *three significant figures*
   19.49711

   (f) Round to *three significant figures*
   6.56501

Simplify each expression by "collecting like terms"

4. (a) $2x + 4 - x + 11$

   (b) $5y - 4 - 7y + y$

   (c) $14 + 5\pi - 2\pi + 4$

   (d) $2a + \sqrt{5} + 7a + 3\sqrt{5}$

   (e) $x\sqrt{3} - x\sqrt{3} + x + 1$

   (f) $3\pi x + 4 + 2\pi x - 7$

Solve each equation for the unknown

One step.

5. (a) $2x = 12$

   (b) $4z = -8$

   (c) $3a = \pi$

   (d) $2y = \sqrt{5}$

Two steps.

6. (a) $7x + 4 = 11$

   (b) $-4b + 5 = -3$

   (c) $4m - \sqrt{2} = 3\sqrt{2}$

   (d) $2y - 3\pi = \pi$

7. Fractional coefficients

   (a) $\frac{1}{2}(6-2x)=4x$ (b) $11=\frac{1}{3}x+2x-10$

Working with polynomials

8. Simplify each expression by "collecting like terms"

   (a) $4x^2+3x-7-2x^2-x+4$ (b) $3(a^2-2a+1)-2(a^2-a-4)$

Slope-intercept form

9. What is the slope and y-intercept of each equation?

   (a) $y=2x-3$ (b) $4x+2y=6$

Parallel and perpendicular linear equations

10. What is the equation of the line with a slope of 2 passing through the point $(0, 1)$? hint: $y - y_1 = m(x - x_1)$

11. What is the equation of a line parallel to $y = -2x + 1$ with a y-intercept of 4?

12. What is the slope of a line perpendicular to the line $x - 2y = 16$?

Rounding and calculations

13. Perform each calculation, writing down the full calculator display and then rounding to the *nearest hundredth*.

    (a) $A = 15.944732$

    (b) $W = 3.4 \times 9.8 \times 4.3 \times 0.15$

    (c) $V = \frac{1}{3}\pi(3.4)^2(6.1)$

    (d) $P = 8.6 + \frac{1}{2}\pi(8.6)$

    (e) $V = 199.19711$

    (f) $W = \frac{1}{3}(13)3.3^2 \times 1.175$

    (g) $V = \frac{1}{3}\pi(12.4)^2(8.1)$

    (h) $P = 12 + \frac{1}{4}\pi(12)$

14. Oceanside Bike Rental Shop charges a 17 dollar bike fee plus 6 dollars an hour for renting a bike. Jeffrey paid 53 dollars total. How many hours did he pay to have the bike checked out?

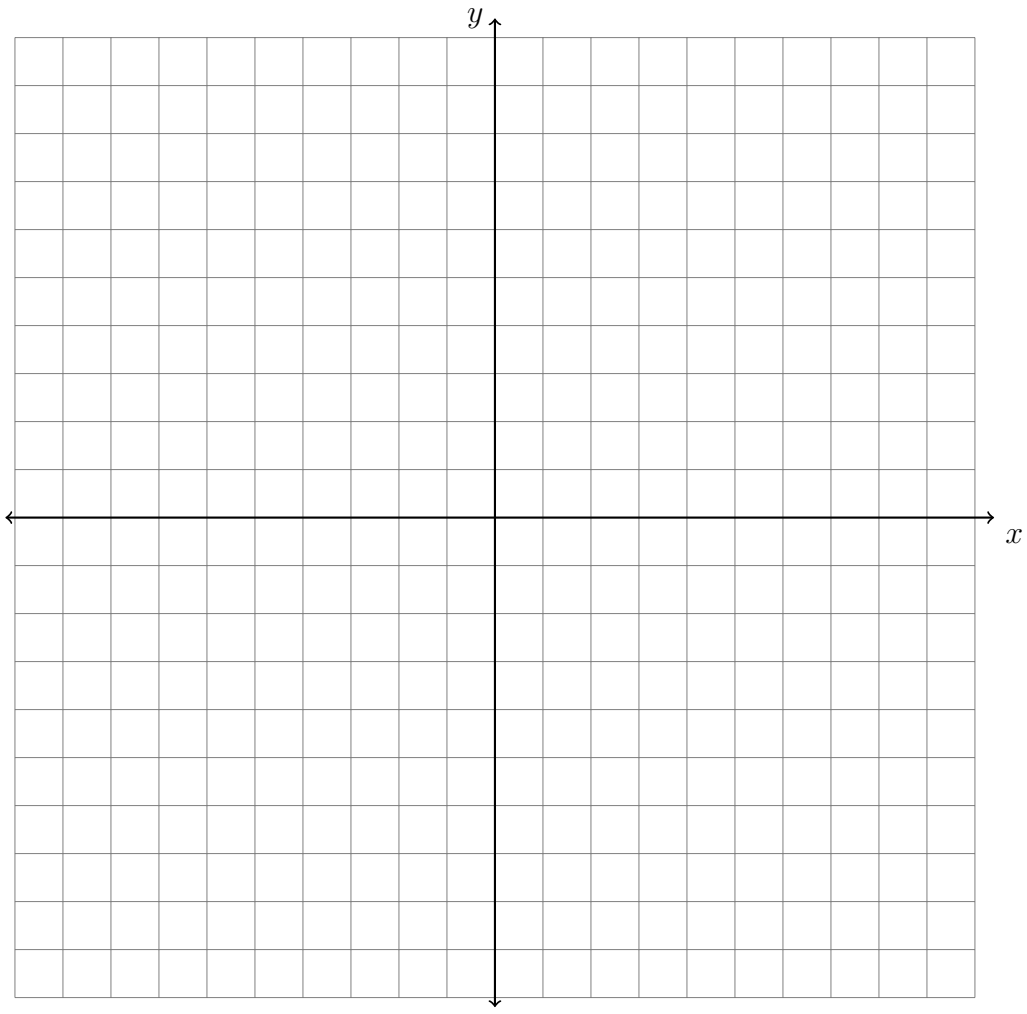
15. Three friends go bowling. The cost per person per game is \$5.30. The cost to rent shoes is \$2.50 per person. Their total cost is \$55.20. How many games did they play?

16. The admission fee at a small fair is \$1.50 for children and \$4.00 for adults. On a certain day, 40 people enter the fair and \$85.00 is collected. How many children and how many adults attended?

17. Solve the system of equations by graphing each line and marking the intersection as an ordered pair.

$$x + y = 7$$

$$y = 3x + 3$$



Solve each system algebraically.

18. $2x - 4y = 14$
$5x + 4y = 7$

19. $2x - y = -7$
$3x + 4y = 17$