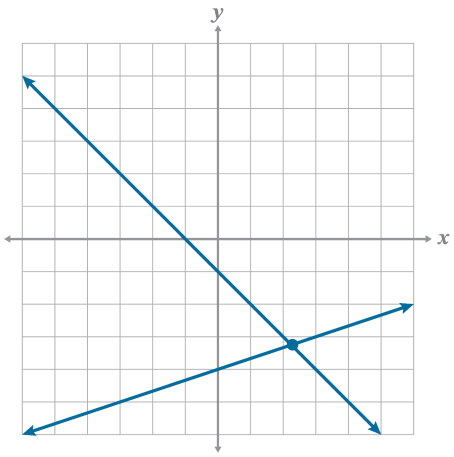
1.



2.

solution: (2.25, −3.25)

Substitution.

$y = -x - 1$

$y = \frac{1}{3}x - 4$

$(-x - 1) = \frac{1}{3}x - 4$

$3(-x - 1 = \frac{1}{3}x - 4) = -3x - 3 = 1x - 12$

$9 = 4x$

$x = \frac{9}{4} = 2.25$

$y = -(2.25) - 1$

$y = -3.25$

If your student has the algebraic solution correct but forgets to change their solution in problem 1 (if inaccurate), make sure they understand it is the same question solved in different ways.

3.

When the graph of a system does not intersect on a grid line, it can be difficult to accurately determine the solution. Using another method to solve, like substitution (since a variable is isolated), would be a better approach.

4.

solution: $(2, -3\frac{1}{2})$

Substitution

$y = \frac{1}{4}x - 4$

$y = -\frac{5}{4}x - 1$

$\frac{1}{4}x - 4 = -\frac{5}{4}x - 1$

$\frac{6}{4}x = 3$

$(\frac{2}{3})(\frac{3}{2}x) = (\frac{2}{3})(3)$

$x = 2$

$y = \frac{1}{4}(2) - 4$

$y = \frac{1}{2} - 4 = -3\frac{1}{2}$

Determine the value of xy using your solution.

$(2)(-3\frac{1}{2}) = (2)(-\frac{7}{2}) = -7$

5.

solution: $(11.5, 3.5)$

Eliminate y

$x + y = 15$

$+ x - y = 8$

$2x = 23$

$x = \frac{23}{2} = 11.5$

$(11.5) + y = 15$

$y = 3.5$

Use your solution to determine the value of $x - y$.

$11.5 - 3.5 = 8$

Write the system of equations for each word problem.
Pick *three* of the systems to solve.
(Students must write the system for all five word problems, but only need to solve three.)

6.
n: nickel, q: quarter
$n + q = 20$

$$0.05n + 0.25q = 2.40$$
$$(-0.05)(n + q = 20) = \underline{-0.05n - 0.05q = -1.00}$$
$$0.20q = 1.40$$
$$20q = 140$$
$$q = 7$$

$q = 7$, $n = 13$ (Note: it is not necessary to solve for nickels)
There are 7 quarters.

7.
m: multiple choice, w: worked answer
$m + w = 22$
$2m + 5w = 50$

$$(-2)(m + w = 22) = -2m - 2w = -44$$
$$\underline{+ 2m + 5w = 50}$$
$$3w = 6$$
$$w = 2$$

$m + (2) = 22$
$m = 20$
There were 20 multiple-choice questions and 2 worked-answer questions.

8.
a: adult, c: children
$a + c = 145$

$$10a + 7c = 1{,}270$$
$$(-10)(a + c = 145) = \underline{-10a - 10c = -1{,}450}$$
$$-3c = -180$$
$$c = 60$$

$a + (60) = 145$
$a = 85$
85 adults and 60 children attended the play.

9.

x: ferry, y: water

$d = tr$

$21 = 2(x - y)$

$21 = 1.5(x + y)$

$(\frac{1}{2})(21 = 2(x - y)) \quad = 10.5 = x - y$

$(\frac{2}{3})(21 = 1.5(x + y)) = \underline{+ 14 = x + y}$

$24.5 = 2x$

$x = 12.25, y = 1.75$

The ferry was traveling 12.25 mph.

10.

d : dime, q: quarter

$2d = q$

$0.10d + 0.25q = 9.00$

$0.10d + 0.25(2d) = 9.00$

$0.10d + 0.5d = 9.00$

$0.60d = 9.00$

$d = 15,$

$2d = q$

$2(15) = q$

$q = 30$

Seth has 15 dimes and 45 total coins.