ARC 150: Review for Quiz 1

Practice Quiz A

In problems 1 and 2, evaluate the given expression:

1. \((-2)(-7) - 8 + 3\)
   
   \[
   = 14 - 8 + 3
   = 6 + 3 = \boxed{9}
   \]

2. \(3(4-2) + 2^2\)
   
   \[
   = 3(2) + 8
   = 6 + 8 = \boxed{14}
   \]

In problems 3 through 8, solve the given equation:

3. \(\frac{-x+3}{4} - 2 = 1\)
   
   \[
   \frac{-x+3}{4} = 3
   \]
   
   \[
   -x + 3 = 12
   \]
   
   \[
   -x = 9
   \]
   
   \[
   x = -9
   \]

4. \(x = 3x + 4\)
   
   \[
   -2x = 4
   \]
   
   \[
   x = \frac{4}{-2} = \boxed{-2}
   \]
5. \( x - 0.05x = 9.5 \)

\[
0.95x = 9.5
\]

\[
x = \frac{9.5}{0.95}
\]

\[
x = 10
\]

6. \( 3(2x - 1) - (3x - 4) = 4 \)

\[
6x - 3 - 3x + 4 = 4
\]

\[
3x + 1 = 4
\]

\[
3x = 3
\]

\[
x = 1
\]

7. \( 2x^2 - 8 = 10 \)

\[
2x^2 = 18
\]

\[
x^2 = 9
\]

\[
x = \pm 3
\]

8. \( \sqrt{x + 3} = 5 \)

\[
x + 3 = 25
\]

\[
x = 22
\]
In problems 9 and 10, find the answer to the word problem.

9. Carol buys a bunch of books. She donates half of the books to the local library. Then, she gives five of the books away as birthday presents. If she now has 14 books, how many did she originally purchase?

\[ x = \text{# of book originally purchased} \]

\[ \frac{x}{2} - 5 = 14 \]

\[ \frac{x}{2} = 19 \]

\[ x = 38 \]

38 books

10. The US Olympic basketball team won a basketball game by 15 points over Germany. The two teams together scored a total of 111 points. How many points did the US team score?

\[ x = \text{U.S. score} \]

\[ x - 15 = \text{Germany score} \]

\[ \text{U.S. + Germany} = 111 \]

\[ x + (x - 15) = 111 \]

\[ 2x - 15 = 111 \]

\[ 2x = 126 \]

\[ x = 63 \]

The U.S. team scored 63 points.
Practice Quiz B

In problems 1 and 2, evaluate the given expression:

1. \[ \frac{3 + 5}{2} - 3 \]
   \[ = \frac{8}{2} - 3 = 4 - 3 = 1 \]

2. \[ -2(1 - 4) - 3(2 + 4) \]
   \[ = -2(-3) - 3(6) = 6 - 18 = -12 \]

In problems 3 through 8, solve the given equation:

3. \[ 3x + 2 = 1 \]
   \[ 3x = -1 \]
   \[ x = -\frac{1}{3} \]

4. \[ \frac{x}{4} + 3 = 7 \]
   \[ \frac{x}{4} = 4 \]
   \[ x = 16 \]
5. \(0.3(1 + x) - 0.5 = 4\)
\[
0.3(1 + x) = 4.5 \\
1 + x = \frac{4.5}{0.3} \\
1 + x = 15
\]
\(\chi = 14\)

6. \(-4(2x - 3) = 3(x + 1) - 2x\)
\[
-8x + 12 = 3x + 3 - 2x \\
-8x + 12 = x + 3 \\
-9x = -9
\]
\(\chi = 1\)

7. \(2\sqrt{x} - 1 = 7\)
\[
2\sqrt{x} = 8 \\
\sqrt{x} = 4 \\
\chi = 16
\]

8. \(5x^2 - 3 = 2\)
\[
5x^2 = 5 \\
x^2 = 1 \\
\chi = \pm 1
\]
In problems 9 and 10, find the answer to the word problem.

9. The Cooking Club made some pies to sell at a bake sale to raise money for their club. The dining hall contributed four pies to the sale. Each pie was then cut into five pieces and sold. There were a total of 60 pieces to sell. How many pies did the Cooking Club make?

\[ x = \# \text{ pies made by the Cooking Club} \]

\[ 5(x + 4) = 60 \]
\[ x + 4 = 12 \]
\[ x = 8 \]

The Cooking Club made 8 pies.

10. George has 37 marbles colored green, blue, and red. He has twice as many red marbles as green marbles, and he has three fewer blue marbles than green marbles. Determine how many red marbles he has.

\[ x = \# \text{ green marbles} \]
\[ 2x = \# \text{ red marbles} \]
\[ x - 3 = \# \text{ blue marbles} \]

Green + Red + Blue = 37
\[ x + 2x + (x - 3) = 37 \]
\[ 4x - 3 = 37 \]
\[ 4x = 40 \]
\[ x = 10 \]

20 red marbles

Red green