A.REI.B.4: Solving Quadratics 1b

1. If the domain is the set of real numbers, what is the solution set for the equation \( x^2 + 4 = 0 \)?

2. What is the solution set of the equation \( 3x^2 = 48 \)?

3. A solution of the equation \( \frac{x^2}{4} = 9 \) is

4. If \( 4x^2 - 100 = 0 \), the roots of the equation are

5. Solve \( 5x^2 = 180 \) algebraically.

6. What is the positive solution of the equation \( 4x^2 - 36 = 0 \)?

7. Solve \( 6x^2 - 42 = 0 \) for the exact values of \( x \).

8. Solve the quadratic equation below for the exact values of \( x \).

\[
4x^2 - 5 = 75
\]

9. Which value of \( x \) is a solution to the equation \( 13 - 36x^2 = -12 \)?

10. The solution of the equation \((x + 3)^2 = 7\) is

11. A student is asked to solve the equation \( 4(3x - 1)^2 - 17 = 83 \). The student's solution to the problem starts as \( 4(3x - 1)^2 = 100 \)

\[
(3x - 1)^2 = 25
\]

A correct next step in the solution of the problem is

12. What is the solution of the equation \( 2(x + 2)^2 - 4 = 28 \)?

13. What are the solutions to the equation \( 3(x - 4)^2 = 27 \)?

14. The height, \( H \), in feet, of an object dropped from the top of a building after \( t \) seconds is given by \( H(t) = -16t^2 + 144 \). How many feet did the object fall between one and two seconds after it was dropped? Determine, algebraically, how many seconds it will take for the object to reach the ground.
A.REI.B.4: Solving Quadratics 1b
Answer Section

1 ANS:
{ }
REF: 010324siii

2 ANS:
{4, -4}
\[3x^2 = 48\]
\[3x^2 - 48 = 0\]
\[x^2 - 16 = 0\]
\[(x + 4)(x - 4) = 0\]
\[x = -4 \quad x = 4\]
REF: 010215a

3 ANS:
6
\[\frac{x^2}{4} = 9\]
\[x^2 = 36\]
\[x^2 - 36 = 0\]
\[(x + 6)(x - 6) = 0\]
\[x = -6 \quad x = 6\]
REF: 010808a

4 ANS:
-5 and 5
REF: 081403ai

5 ANS:
5\[x^2 = 180\]
\[x^2 = 36\]
\[x = \pm 6\]
REF: 061928ai
6 ANS:
\[
\frac{4x^2 - 36}{4} = 0
\]
\[
\frac{4}{4} - \frac{4}{4} = 0
\]
3. \(x^2 - 9 = 0\)
\[
(x + 3)(x - 3) = 0
\]
\[
x = -3 \quad x = 3
\]

REF: 080733a

7 ANS:
6\(x^2 = 42\)
\[
x^2 = 7
\]
\[
x = \pm \sqrt{7}
\]

REF: 081931ai

8 ANS:
4\(x^2 = 80\)
\[
x^2 = 20
\]
\[
x = \pm \sqrt{20}
\]

REF: 011932ai

9 ANS:
\[
\frac{5}{6}
\]
36\(x^2 = 25\)
\[
x^2 = \frac{25}{36}
\]
\[
x = \pm \frac{5}{6}
\]

REF: 011715ai

10 ANS:
\(-3 \pm \sqrt{7}\)

REF: 081523ai

11 ANS:
3\(x - 1 = \pm 5\)

REF: 061521ai
12 ANS: 
2 and −6 

\[ 2(x + 2)^2 = 32 \]
\[ (x + 2)^2 = 16 \]
\[ x + 2 = ±4 \]
\[ x = −6,2 \]

REF: 061619ai 

13 ANS: 
1 and 7 

\[ 3(x − 4)^2 = 27 \]
\[ (x − 4)^2 = 9 \]
\[ x − 4 = ±3 \]
\[ x = 1,7 \]

REF: 011814ai 

14 ANS: 

\[ H(1) − H(2) = −16(1)^2 + 144 − (−16(2)^2 + 144) = 128 − 80 = 48 \]
\[ −16t^2 = −144 \]
\[ t^2 = 9 \]
\[ t = 3 \]

REF: 061633ai