Lesson 6.2: Solving Absolute Value Equations

▤ Explore Your Understanding Assignment

This assignment includes multiple choice and short answer questions. For multiple choice questions, select the best answer. Each is worth 1 mark. Marks assigned to short answer questions are indicated for each question. Be sure to show all necessary work.

① _____ 1.   A partial solution to $|1 - x| - 3 = -1$ is shown.

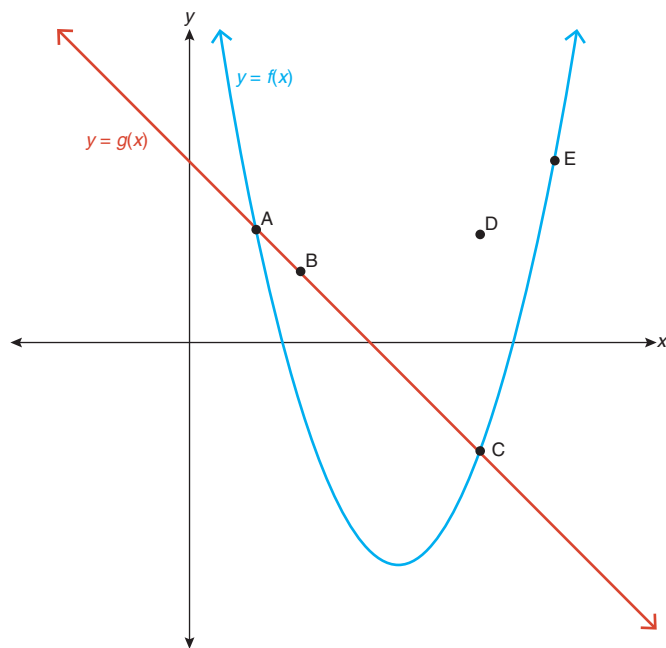| Line 1	$|1 - x| - 3 = -1$
Line 2	$|1 - x| = 2$
Line 3	$1 + x = 2$ or $-1 + x = 2$
Line 4	$x = 3$ or $x = 1$

The first recorded error is in

A.   Line 2

B.   Line 3

C.   Line 4

D.   there is no error shown

① _____ 2.   The absolute value equation with exactly one solution is

A. $\left|\frac{1}{10}x\right| = x^2$

B. $|-2x + 1| = 3x + 2$

C. $|3x + 1| - 2 = \frac{5}{2}x + 3$

D. $|2(x - 1)^2 - 3| = -2x - 1$

Use the following information to answer question 3.

1 _____ 3.   The solutions to the equation $|f(x)| = g(x)$ are represented by the points

   A.   A and B
   B.   A and C
   C.   A and E
   D.   A, B, D, and E

(1)_____   4.   The solution to $|3x + 4| = 6x + 7$ can be found by

A.   solving $-3x - 4 = 6x + 7$ over the interval $\left(-\infty, -\frac{4}{3}\right)$.

B.   solving $-3x - 4 = 6x + 7$ over the interval $\left[-\frac{4}{3}, \infty\right)$.

C.   solving $3x + 4 = 6x + 7$ over the interval $\left(-\infty, -\frac{4}{3}\right)$.

D.   solving $3x + 4 = 6x + 7$ over the interval $\left[-\frac{4}{3}, \infty\right)$.

(1)_____   5.   The maximum and minimum length, l, of an 8 ft board with a tolerance of $\pm\frac{1}{4}$ in can be determined by solving the equation

A. $|l - 0.25| = 96$

B. $|l + 0.25| = 96$

C. $|l - 96| = 0.25$

D. $|l + 96| = 0.25$

③ 6.   Solve $|x^2 - 4| = 2 - x$ algebraically.

②   7.   An equation that describes the maximum and minimum temperatures at which a chemical compound is in a liquid state is given by the absolute value equation $|T - 50| = 50$, where T is the temperature in degrees Celsius. Calculate the range in temperature, and identify the chemical compound.

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You have completed *Lesson 6.2 Explore Your Understanding Assignment*. Please review all work in *Workbook 6A* to ensure it is your best work. Submit *Workbook 6A* for marking at this time and proceed to *Lesson 6.3* in the *Module*.