

Unit 3: Radicals Final Review Assignment



Final Review 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.

Use the following radical expression to answer questions 1 and 2.

$$\left(8\sqrt{x} - 5\sqrt{\frac{1}{x}}\right)^2$$

① _____ 1. The restriction on x is

- A. $x \geq 0$
- B. $x > 0$
- C. $x \leq 0$
- D. $x < 0$

① _____ 2. When expanded and simplified, $\left(8\sqrt{x} - 5\sqrt{\frac{1}{x}}\right)^2$ is

- A. $64x - 80\sqrt{x} + 25$
- B. $64\sqrt{x} - 40 + \frac{25}{x}$
- C. $64x - 80 + \frac{25}{x}$
- D. $64x - 40\sqrt{x} + 25$

① _____ 3. In its most simplified form, the expression $\frac{2\sqrt{a} - 3\sqrt{b}}{2\sqrt{a} + 3\sqrt{b}}$ is

- A. $\frac{2a - 3b}{2a + 3b}$
- B. $\frac{4a - 9b}{4a + 9b}$
- C. $\frac{2a - 6\sqrt{ab} + 3b}{2a - 3b}$
- D. $\frac{4a - 12\sqrt{ab} + 9b}{4a - 9b}$

Use the following radical equation to answer questions 4 and 5.

$$\sqrt{b+1} = \sqrt{b+6} - 1$$

- ① _____ 4. The restriction on b is
- A. $b \geq -1$
 - B. $b > -1$
 - C. $b \geq -6$
 - D. $b > -6$
- ③ 5. Determine the solution(s) to the radical equation above. Show all work, and verify the solution(s).

6. Police can estimate the speed a car had been travelling using the length of the skid marks. One formula used for this purpose is $v = -7 + 8.2\sqrt{d}$, $d \geq 0$, where v is the speed, in kilometres per hour, and d is the length of the skid marks, in metres.

①

- a. Solve the formula for d .

①

- b. For a car braking from a speed of 90 km/h, determine the length of the skid marks, to the nearest metre.

①

- c. What would have been the speed of a car, to the nearest kilometre per hour, that would have resulted in 150 m skid marks?

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