Algebra Prep 3

1	**Simplify $\sqrt{\frac{100x^2}{4}} - 20x$ for all $x \geq 0$.** ○ **A** $-15x$ ○ **B** $-10x$ ○ **C** $5x$ ○ **D** $25x$
2	**What is the product of $(2\sqrt{q} + 3\sqrt{r})$ and $7\sqrt{q}$, if q and r are positive integers?** ○ **A** $9\sqrt{q} + 10\sqrt{qr}$ ○ **B** $14\sqrt{q} + 21\sqrt{qr}$ ○ **C** $14q + 3\sqrt{r}$ ○ **D** $14q + 21\sqrt{qr}$
3	**Simplify:** $\frac{12\sqrt{x}}{\sqrt{3}}$ ○ **A** $4\sqrt{x}$ ○ **B** $36\sqrt{x}$ ○ **C** $4\sqrt{3x}$ ○ **D** $12\sqrt{3x}$
4	**Simplify:** $\left(\sqrt{3r^2s}\right)^6$ ○ **A** $9r^6s^3$ ○ **B** $9r^5s^4$ ○ **C** $27r^5s^4$ ○ **D** $27r^6s^3$

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Which number when multiplied by the expression $\sqrt{256x^2}$ gives the product of $-4x$ for all $x \geq 0$?

- **A** $-\frac{1}{4}$
- **B** -4
- **C** $\frac{1}{4}$
- **D** 4

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A can of soup weighs 10.5 ounces. If one ounce is about 2.84×10^{-2} kilograms, how much does the can of soup weigh in kilograms?

- **A** 2.982×10^{-4}
- **B** 2.982×10^{-3}
- **C** 2.982×10^{-2}
- **D** 2.982×10^{-1}

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The table shows the speed of light in meters per second through a vacuum and ice.

Speed of Light

Medium	Speed (meters per second)
Vacuum	3.0×10^8
Ice	2.3×10^8

To the nearest tenth, how many times faster does light travel in a vacuum than in ice?

- **A** 0.7
- **B** 0.8
- **C** 1.3
- **D** 1.5

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On a particular day, a gas station sells 3.5×10^4 gallons of gasoline. If 1,750 cars get gas on that day, what is the average number of gallons pumped per car?

- **A** 20
- **B** 50
- **C** 200
- **D** 500

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Which expression is equivalent to $\left(4.5 \times 10^4\right)^2$?

- **A** 2.025×10^5
- **B** 2.025×10^6
- **C** 2.025×10^8
- **D** 2.025×10^9

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Simplify: $(2.3 \times 10^{-6})^2$

- **A** 5.29×10^{-12}
- **B** 4.6×10^{-12}
- **C** 5.29×10^{-4}
- **D** 4.6×10^{-4}

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Which number lies between $\frac{25}{7}$ and $\frac{36}{8}$?

- **A** $\sqrt{10}$
- **B** $\sqrt{11}$
- **C** $\sqrt{17}$
- **D** $\sqrt{27}$

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Which list shows the numbers arranged from least to greatest?

- **A** $5.32, \frac{4}{5}, \sqrt{17}, \frac{12}{5}$
- **B** $\frac{4}{5}, 5.32, \frac{12}{5}, \sqrt{17}$
- **C** $5.32, \sqrt{17}, \frac{12}{5}, \frac{4}{5}$
- **D** $\frac{4}{5}, \frac{12}{5}, \sqrt{17}, 5.32$

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Which set of numbers is ordered from greatest to least?

- **A** $\left\{\sqrt{31}, 3.85, \frac{7}{9}, \frac{10}{16}\right\}$
- **B** $\left\{\frac{10}{16}, \frac{7}{9}, 3.85, \sqrt{31}\right\}$
- **C** $\left\{\frac{10}{16}, 3.85, \frac{7}{9}, \sqrt{31}\right\}$
- **D** $\left\{\sqrt{31}, \frac{7}{9}, 3.85, \frac{10}{16}\right\}$

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Which list shows the numbers ordered from greatest to least?

- **A** $4.36, \sqrt{23}, 5.108, 5.35$
- **B** $5.108, 5.35, 4.36, \sqrt{23}$
- **C** $5.35, 5.108, \sqrt{23}, 4.36$
- **D** $4.36, 5.108, \sqrt{23}, 5.35$

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Which set of numbers is ordered from least to greatest?

- **A** $\left\{\frac{17}{2}, \sqrt{49}, \frac{26}{4}, \sqrt{22}\right\}$
- **B** $\left\{\sqrt{22}, \sqrt{49}, \frac{26}{4}, \frac{17}{2}\right\}$
- **C** $\left\{\frac{17}{2}, \frac{26}{4}, \sqrt{22}, \sqrt{49}\right\}$
- **D** $\left\{\sqrt{22}, \frac{26}{4}, \sqrt{49}, \frac{17}{2}\right\}$