

REVIEW

1. Which expression is equivalent to $\sqrt[3]{27x^9y^{12}}$?

A) $3x^{27}y^{36}$

B) $9x^{27}y^{36}$

C) $3x^3y^4$

D) $9x^3y^4$

$3x^3y^4$

2. Solve for x: $\sqrt{8x+17} - 19 = -10$

$$\begin{array}{r} \sqrt{8x+17} - 19 = -10 \\ +19 \quad +19 \\ \hline \sqrt{8x+17} = 9 \end{array}$$

$$\begin{array}{r} 8x+17 = 81 \\ -17 \quad -17 \\ \hline 8x = 64 \\ x = 8 \\ \boxed{\{8\}} \end{array}$$

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3. The number of bacteria in a swimming pool after disinfection can be modeled by the equation

$y = 5500\sqrt{0.025x + 0.1}$ where x is the number of minutes.

At what time are there 3000 bacteria left in the swimming pool?

$$\begin{array}{l} 3000 = 5500\sqrt{0.025x + 0.1} \\ \frac{3000}{5500} = \frac{5500\sqrt{0.025x + 0.1}}{5500} \\ \left(\frac{6}{11}\right)^2 = \left(\sqrt{0.025x + 0.1}\right)^2 \\ \frac{36}{121} = 0.025x + 0.1 \end{array}$$

$$\frac{-197 \dots}{.025} = \frac{.025x}{.025}$$

$7.9 \dots = x$
minutes

4. Simplify $(1 + 6yi)(1 + 4i) - (1 - 2yi)(1 + 4i)$ and express your answer in $a + bi$ form.

$$\begin{array}{l} 1 + 4i + 6yi + 24yi^2 \\ \cancel{1} + \cancel{4i} + 6yi - 24y \\ -1 - 4i + 2yi - 8y \\ \hline 8yi - 32y = -32y + 8yi \end{array}$$

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$8yi - 32y = -32y + 8yi$

5. The expression $\sqrt[3]{x^{26}}$ is equivalent to

A. $x^8\sqrt[3]{x}$

$$\sqrt[3]{x^{24} \cdot x^2}$$

B. $x^8\sqrt[3]{x^2}$

$$x^8\sqrt[3]{x^2}$$

C. $x^7\sqrt[3]{x}$

D. $x^7\sqrt[3]{x^2}$

$$(1.2)^2 = \left(\sqrt{\frac{2W}{32.9}}\right)^2$$

$$1.44 = \frac{2W}{32.9}$$

$$47.376 = 2W$$

$$23.688 = W$$

6. The length a spring is stretch from its natural length with work, W, is given by $L = \sqrt{\frac{2W}{k}}$, where k is a constant for the given spring. If a certain spring has a constant of 32.9 and the spring is to be stretch 1.2 feet from its natural length, how much work will be necessary? Round your answer to the nearest tenth.

Find W!

$$W = 23.7$$

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7. Express $\left(\frac{\sqrt{3}}{4} - \frac{\sqrt{3}}{2}i\right)^2$ in simplest radical form.

$$\left(\frac{\sqrt{3}}{4} - \frac{\sqrt{3}}{2}i\right)\left(\frac{\sqrt{3}}{4} - \frac{\sqrt{3}}{2}i\right)$$

$$\frac{3}{16} - \frac{3}{8}i$$

$$- \frac{3}{8}i + \frac{3}{4}i^2$$

$$\frac{3}{16} - \frac{6}{8}i - \frac{3}{4} = \boxed{-\frac{9}{16} - \frac{3}{4}i}$$

HOMEWORK: Complete Unit 1 Review Sheet

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