29 Which of the following is an equivalent expression for $\sqrt[3]{81x^4y^2z^{12}} + \sqrt[3]{24x^7y^2z^{27}}$?

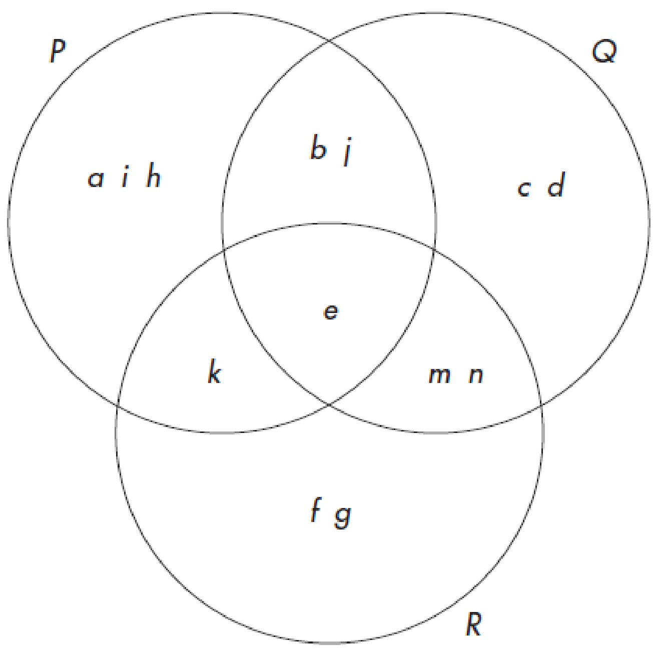
(A) $(3xz^4 + 2x^2z^9)(\sqrt[3]{3xy^2})$

(B) $(18xz^4 + 8x^2z^9)(\sqrt[3]{3xy^2})$

(C) $(3xz^8 + 2x^2z^{24})(\sqrt[3]{3xy^2})$

(D) $(18xz^8 + 8x^2z^{24})(\sqrt[3]{3xy^2})$

30 Look at the Venn diagram shown below. The Universal set consists of only sets P, Q, and R.



Which set represents $(\sim P \cap R) - Q$?

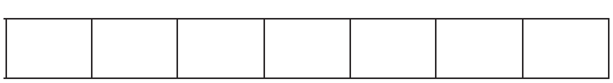
(F) $\{f, g, m, n\}$

(G) $\{k, e, f, g\}$

(H) $\{k, m, n\}$

(I) $\{f, g\}$

31 What is the value, rounded off to the nearest tenth, of the larger root of the equation $3x^2 - 16x + 2 = 0$?



Answers

29 **(A)**

$\sqrt[3]{81x^4y^2z^{12}} + \sqrt[3]{24x^7y^2z^{27}} = \sqrt[3]{(27)(3)(x^3)(x)(y^2)(z^{12})} + \sqrt[3]{(8)(3)(x^6)(x)(y^2)(z^{27})} =$ $(3xz^4)(\sqrt[3]{3xy^2}) + (2x^2z^9)(\sqrt[3]{3xy^2}) = (3xz^4 + 2x^2z^9)(\sqrt[3]{3xy^2})$.

30 **(I)**

$\sim P = \{c, d, f, g, m, n\}$ and $R = \{e, f, g, k, m, n\}$, so $(\sim P \cap R) = \{f, g, m, n\}$. $Q = \{b, c, d, e, j, m, n\}$. $(\sim P \cap R) - Q$ means all elements in $(\sim P \cap R)$ that are not in Q. Thus, $(\sim P \cap R) - Q = \{f, g\}$.

31 The correct answer is 5.2. Using the Quadratic equation, the solutions are given by $\frac{-(-16) \pm \sqrt{(-16)^2 - (4)(3)(2)}}{(2)(3)} = \frac{16 \pm \sqrt{256 - 24}}{6} = \frac{16 \pm \sqrt{232}}{6}$. Since $\sqrt{232} \approx 15.23$, the larger root is given by $\frac{16 + 15.23}{6} = \frac{31.23}{6} \approx 5.2$. (Note that the value of the smaller root is approximately 0.13.)