

# 4. OPERATIONS ON SURDS<sup>①</sup>

## Class: VII, MATHEMATICS

### FOUNDATION<sup>†</sup>, SOLUTIONS

2025-26

#### TEACHING TASK

#### JEE MAINS LEVEL

01.  $3\sqrt{3x-3} = 3$  |  $5\sqrt{2y-1} = 2$  |  $y = \frac{29}{50}$   
 $\Rightarrow 3x-3=1$  |  $2y-1 = \frac{4}{25}$   
 $\Rightarrow x = \frac{4}{3}$  |  $2y = \frac{29}{25}$

$$\therefore \sqrt{x+2y+3} = \sqrt{\frac{4}{3} + \frac{29}{25} + 3} = \sqrt{\frac{412}{75}} = 5.493$$

$$\therefore \sqrt{5.493} = 2.343$$

P

Ans: A

02.  $x^{\frac{1}{4}} = 4 \Rightarrow x^{\frac{3}{4}} = 64$   
 $y^{\frac{1}{2}} = 3 \Rightarrow y^{\frac{5}{2}} = 3^5 \Rightarrow y^{\frac{5}{2}} = 243$   
 $\therefore \text{Ans} = 64 + 243 = 307$

Ans: C

03.  $x = 2 \times \sqrt{48} \times \sqrt{3} = 2 \times 4\sqrt{3} \times \sqrt{3} = 24$   
 $y = \sqrt{27} + \sqrt{12} = 3\sqrt{3} + 2\sqrt{3} = 5\sqrt{3}$   
 $x^2 + y^2 = 651 \Rightarrow \sqrt{x^2 + y^2} = 25.52$

Ans: C

04.  $\sqrt[4]{162} = \sqrt[4]{3^4 \times 2} = 3\sqrt[4]{2}$  (2)  
 $\sqrt[4]{32} = \sqrt[4]{2^4 \times 2} = 2\sqrt[4]{2}$   
 $\sqrt[4]{1250} = \sqrt[4]{5^4 \times 2} = 5\sqrt[4]{2}$   
 $\therefore G.E = 5(3\sqrt[4]{2}) - 7(2\sqrt[4]{2}) + 5\sqrt[4]{2}$   
 $= 15\sqrt[4]{2} - 14\sqrt[4]{2} + 5\sqrt[4]{2}$   
 $= 6\sqrt[4]{2}$  Ans: B

05.  $3\sqrt{147} + \frac{1}{3\sqrt{3}} + \frac{1}{\sqrt{27}}$   
 $= 3 \cdot 7\sqrt{3} + \frac{7\sqrt{3}}{9} + \frac{\sqrt{3}}{9}$   
 $= \frac{197\sqrt{3}}{9} \times \frac{\sqrt{3}}{\sqrt{3}} = \frac{197}{3\sqrt{3}}$  Ans: C

06.  $\sqrt{128} = 8\sqrt{2}$  ;  $\sqrt{75} = 5\sqrt{3}$  ;  $\sqrt{162} = 9\sqrt{2}$   
 $G.E = 4(8\sqrt{2}) + 4(5\sqrt{3}) - 5(9\sqrt{2})$   
 $= 32\sqrt{2} + 20\sqrt{3} - 45\sqrt{2}$   
 $= 20\sqrt{3} - 13\sqrt{2}$  Ans: B

07.  $x = (2\sqrt{11})^2 - (5\sqrt{2})^2 = 44 - 50 = -6$   
 $y = (5\sqrt{3})^2 - (2\sqrt{7})^2 = 225 - 28 = 197$   
 $\therefore \sqrt{y-x+18} = \sqrt{197+6+18} = \sqrt{221} = 14$

Ans: B



08

$$\frac{4 \cdot \sqrt[3]{275}}{5 \cdot \sqrt[4]{32}} = \frac{4 \cdot \sqrt[4]{5^3 \times 3}}{5 \times 2 \sqrt[4]{2}} = \frac{20 \sqrt[3]{3}}{10 \sqrt[4]{2}} \quad (3)$$

$$= 2 \cdot \frac{3^{\frac{1}{3}}}{2^{\frac{1}{4}}} = 2 \cdot \frac{3^{\frac{4}{12}}}{2^{\frac{3}{12}}} = 2 \sqrt[12]{\frac{81}{8}}$$

Ans: C

09.

$$\sqrt[4]{1250} = \sqrt[4]{5^4 \times 2} = 5 \sqrt[4]{2}$$

$$\sqrt[4]{8} = \sqrt[4]{2}$$

$$3\sqrt{75} = 3 \times 5\sqrt{3} = 15\sqrt{3}$$

$$\sqrt{48} = \sqrt{16 \times 3} = 4\sqrt{3}$$

$$Q. 5 = 5 \sqrt[4]{2} \times \sqrt[4]{8} + 15\sqrt{3} \times 3 \times \sqrt{3}$$

$$= 5 \sqrt[4]{16} + 40$$

$$= 10 + 40 = 50$$

Ans: A

10

$$\sqrt[4]{81} = \sqrt[4]{3^4} = 3$$

$$\sqrt[3]{343} = 7$$

$$\sqrt[5]{32} = \sqrt[5]{2^5} = 2$$

$$\sqrt{225} = 15$$

$$Q. E = 3 - 8(7) + 15(2) + 15$$

$$= 3 - 56 + 30 + 15$$

$$= -8$$

Ans: B

# JEE ADVANCED LEVEL

(4)

$$01. \left. \begin{array}{l} \sqrt[4]{81} = \sqrt[4]{3^4} = 3 \\ \sqrt[3]{216} = \sqrt[3]{6^3} = 6 \end{array} \right\} \begin{array}{l} \sqrt{225} = 15 \\ \sqrt[5]{32} = 2 \end{array}$$

$$\begin{aligned} \text{G.E} &= 3 - 8(6) + 15 + 15(2) \\ &= 3 - 48 + 15 + 30 \\ &= 0 = 24\sqrt{0} \end{aligned}$$

Ans: BC

$$02. \sqrt{\sqrt[4]{a^8} - 2\sqrt{a^2b^2} + \sqrt[4]{b^8}}$$

$$= \sqrt{a^2 - 2ab + b^2} = \sqrt{(a-b)^2} = a-b$$

~~Ans: B, C~~

$$\text{or } = \sqrt{(b-a)^2} = b-a$$

Ans: B, C

03 Statement I:

$$\frac{abc}{(abc)^{1/3}} = \frac{1}{49}$$

$$\Rightarrow (abc)^{2/3} = \frac{1}{7} \quad (\text{True})$$

Statement II:  $a+b+c=0 \Rightarrow a^3+b^3+c^3=3abc$

$$(x^{1/3})^3 + (y^{1/3})^3 + (z^{1/3})^3 = 3 \cdot x^{1/3} \cdot y^{1/3} \cdot z^{1/3}$$

$$\Rightarrow x+y+z = 3(xy z)^{1/3}$$

$$\Rightarrow (x+y+z)^3 = 27xyz \quad (\text{False})$$

Ans: C



04. Statement I:  $\sqrt{27} = 3\sqrt{3}$

(5)

$$Q.E = 3\sqrt{3} + 5\sqrt{3} - 3\sqrt{3} \\ = 5\sqrt{3} \text{ (True)}$$

Statement II: Conceptual (True)

Ans: A

05. Assertion:  $\frac{\sqrt{50}}{\sqrt{2}} = \sqrt{\frac{50}{2}} = \sqrt{25} = 5$  (False)

Reason: Conceptual (True)

Ans: D

06. Assertion:  $2\sqrt{3} + 5\sqrt{3} - 4\sqrt{3} = 3\sqrt{3}$  (True)

Reason: Conceptual (True)

Ans: A

07.  $\sqrt{20} = \sqrt{4 \times 5} = 2\sqrt{5}$

$$\sqrt{45} = \sqrt{9 \times 5} = 3\sqrt{5}$$

$$Q.E = \sqrt{5} + 2\sqrt{5} + 3\sqrt{5} = 6\sqrt{5}$$

Ans: C

08.  $\sqrt{12} = \sqrt{36 \times 2} = 6\sqrt{2}$  |  $\sqrt{27} = \sqrt{9 \times 3} = 3\sqrt{3}$   
 $\sqrt{48} = \sqrt{16 \times 3} = 4\sqrt{3}$  |  $\sqrt{18} = \sqrt{9 \times 2} = 3\sqrt{2}$

$$Q.E = 4\sqrt{3} - 6\sqrt{2} - 3\sqrt{3} + 2(3\sqrt{2}) \\ = \sqrt{3}$$

Ans: B

09.  $\sqrt[n]{a^m \cdot b^m} = \sqrt[n]{(ab)^m} = (ab)^{\frac{m}{n}}$

Ans: A

10.

$$\begin{aligned} & \sqrt[m]{x^2} \cdot \sqrt[n]{x^2} \cdot \sqrt[mn]{x^2} \\ &= x^{\frac{2}{m} + \frac{2}{n} + \frac{2}{mn}} \\ &= x^{\frac{2(m+n+1)}{mn}} \end{aligned}$$

Ans: A

11

$$A+B=2\sqrt{7} \quad ; \quad A-B=2\sqrt{3}$$

$$(A+B)^2 + (A-B)^2 = 40$$

Ans: 40

12

$$\sqrt[3]{2x+1} = 9$$

$$\Rightarrow 2x+1 = 729$$

$$\Rightarrow x = 364$$

Ans: 364

13

$$a) \sqrt[4]{2} + \sqrt[4]{4} + \sqrt[4]{16}$$

$$= \sqrt[4]{2} + \sqrt[4]{2} + \sqrt[4]{2} = 3 \cdot \sqrt[4]{2} \quad (v)$$

$$b) \sqrt[n]{a} \times \sqrt[n]{b} = \sqrt[n]{ab} \quad (x)$$

$$c) (\sqrt[3]{1000})^n + (\sqrt[4]{2000})^m + (\sqrt[7]{7000})^x = 10^4$$

By Trial and Error method.

$$\text{Take } n=3, m=4, x=7$$

$$\therefore (\sqrt[3]{1000})^3 + (\sqrt[4]{2000})^4 + (\sqrt[7]{7000})^7 = 10^4$$

$$\Rightarrow 1000 + 2000 + 7000$$

$$= 10000 = 10^4 \quad (\text{True})$$

$$\therefore m+n+x = 3+4+7 = 14$$



(7)

$$d) x = \sqrt[5]{\sqrt{1024}} = \sqrt[10]{2^{10}} = 2$$

$$y = \sqrt[6]{\sqrt[3]{9^8}} = \sqrt[18]{9^{18}} = 9$$

$$z = \sqrt[5]{\sqrt[3]{4^{15}}} = \sqrt[15]{4^{15}} = 4.$$

$$\therefore \sqrt[4]{xy + yz + zx + 18}$$

$$= \sqrt[4]{18 + 36 + 8 + 18} = \sqrt[4]{80} = \sqrt[4]{2^4 \times 5} = 2\sqrt[4]{5} \text{ (t)}$$

$$14) a) \sqrt{50} + \sqrt{72} = \sqrt{25 \times 2} + \sqrt{36 \times 2} = 5\sqrt{2} + 6\sqrt{2} = 11\sqrt{2} \text{ (r)}$$

$$b) 45\sqrt{6} - 3\sqrt{36 \times 6} = 45\sqrt{6} - 18\sqrt{6} = 27\sqrt{6} \text{ (p)}$$

$$c) 8\sqrt{45} - 8\sqrt{20} + \sqrt{45} - 3\sqrt{125}$$

$$= 8\sqrt{9 \times 5} - 8\sqrt{4 \times 5} + \sqrt{49 \times 5} - 3\sqrt{25 \times 5}$$

$$= 24\sqrt{5} - 16\sqrt{5} + 7\sqrt{5} - 15\sqrt{5} = 0 \text{ (s)}$$

$$d) 4\sqrt{3} + 6\sqrt{9 \times 3} = 4\sqrt{3} + 18\sqrt{3} = 22\sqrt{3} \text{ (q)}$$

Ans: r, p, s, q

# LEARNERS TASK

## Conceptual Understanding Questions (CUPS)

(8)

01.  $6\sqrt{2} + 11\sqrt{2} = 17\sqrt{2}$

Ans: A

02.  $8\sqrt{3} - 4\sqrt{25 \times 3} = 8\sqrt{3} - 20\sqrt{3} = -12\sqrt{3}$

Ans: C

03.  $\sqrt[3]{3} \times \sqrt{2}$

L.C.M. of 3 and 2 = 6

$\sqrt[6]{3^2} \times \sqrt[6]{2^3} = \sqrt[6]{9 \times 8} = \sqrt[6]{72}$

Ans: B

04.  $\sqrt[3]{2} \times \sqrt[6]{2}$

$= \sqrt[6]{2^2} \times \sqrt[6]{2} = \sqrt[6]{4 \times 2} = \sqrt[6]{8}$

Ans: A

05.  $\frac{\sqrt[3]{4 \times 8}}{2} = \frac{\sqrt[3]{32}}{2} = \frac{\sqrt[3]{2^5}}{2} = \sqrt[3]{4}$

Ans: A

06.  $A = \sqrt{125} - \sqrt{45} - \sqrt{20}$   
 $= 5\sqrt{5} - 3\sqrt{5} - 2\sqrt{5}$   
 $= 0$

$B = \sqrt{80} + \sqrt{45} - \sqrt{125}$   
 $= 4\sqrt{5} + 3\sqrt{5} - 5\sqrt{5}$   
 $= 2\sqrt{5}$

Ans: C

07.  $\frac{1}{2} \sqrt{16,200} = \frac{1}{2} \sqrt{162 \times 100} = \frac{1}{2} \sqrt{81 \times 2 \times 100}$   
 $= \frac{1}{2} \times 9 \times 10 \sqrt{2} = 45 \times 1.414$   
 $= 63.63$

Ans: D



08

$$\sqrt{294} - 3\sqrt{\frac{1}{6}} - 5\sqrt{6} + \sqrt{252}$$

$$= 7\sqrt{6} - \frac{3}{\sqrt{6}} - 5\sqrt{6} + 6\sqrt{6}$$

$$= \frac{42 - 3 - 30}{\sqrt{6}} + 6\sqrt{6}$$

$$= \frac{9}{\sqrt{6}} + 6\sqrt{6} \quad \text{II}$$

Ans. A

09

$$\frac{1}{2}\sqrt{48} + \sqrt{192} - \sqrt{75}$$

$$= \frac{1}{2} \times 4\sqrt{3} + \sqrt{2^6 \times 3} - \sqrt{25 \times 3}$$

$$= 2\sqrt{3} + 8\sqrt{3} - 5\sqrt{3} = 5\sqrt{3} = 5 \times 1.7321$$

$$= 8.6605$$

Ans. A

10

$$\left(\frac{1}{x^3}\right)^2 - 4 = 5$$

$$\Rightarrow \frac{1}{x^3} = 3 \Rightarrow x = 27$$

Ans. D

JEE MAINS LEVEL

01.

$$x^{\frac{3}{5}} = x^y \quad \left| \quad \sqrt[4]{\frac{3}{5}} \right.$$

$$\Rightarrow y = \frac{3}{5}$$

Ans. C

02

$$\frac{x+1}{x+20} = \frac{8}{27}$$

$$\Rightarrow 27x + 27 = 8x + 160$$

$$19x = 133$$

$$x = 7$$

Ans. B



Q3

$$\left(\frac{125}{x}\right)^{\frac{2}{3}} + \left(\frac{y}{64}\right)^{\frac{1}{3}} = \frac{154}{36}$$

(10)

$$\frac{25}{x^{2/3}} + \frac{y^{1/3}}{4} = \frac{154}{36}$$

option verification: take  $x = 27$ ,  $y = 216$

$$\text{LHS} = \frac{25}{(27)^{2/3}} + \frac{(216)^{1/3}}{4}$$

$$= \frac{25}{9} + \frac{6}{4}$$

$$= \frac{154}{36} = \text{RHS}$$

Ans. B

Q4.

$$p = \frac{(125)^{7/3} - (125)^{5/3}}{125^{2/3}} = \frac{5^7 - 5^5}{5^2}$$

$$= \frac{5^5(5^2 - 1)}{5^2} = 10^3 \times 24$$

$$y^{y+1} = 3^4 = 3^{3+1} \Rightarrow y = 3$$

$$\text{Now } p \times y^2 = 5^3 \times 24 \times 3^2 = 5^3 \times 2^3 \times 3 \times 3^2$$

$$= 10^3 \times 3^3$$

Ans. D

Q5

$$xy = \frac{25-3}{16} = \frac{22}{16} = \frac{11}{8}$$

$$\therefore \sqrt{xy} = \sqrt{\frac{11}{8}} = \sqrt{\frac{22}{16}} = \frac{\sqrt{22}}{4}$$

Ans. D





06.  $3\sqrt{45} - \sqrt{20} + 7\sqrt{5}$  (11)  
 $= 9\sqrt{5} - 2\sqrt{5} + 7\sqrt{5} = 14\sqrt{5}$  Ans: A

07  $2\sqrt[3]{189} + 3\sqrt[3]{875} - 7\sqrt[3]{56}$   
 $= 2\sqrt[3]{3^3 \times 7} + 3\sqrt[3]{5^3 \times 7} - 7\sqrt[3]{2^3 \times 7}$   
 $= 6\sqrt[3]{7} + 15\sqrt[3]{7} - 14\sqrt[3]{7}$   
 $= 7\sqrt[3]{7}$  Ans: C

08  $5\sqrt[3]{-54} + 2\sqrt[3]{-16} + 4\sqrt[3]{686}$   
 $= 5\sqrt[3]{(-3)^3 \times 2} + 2\sqrt[3]{(-2)^3 \times 2} + 4\sqrt[3]{7^3 \times 2}$   
 $= -15\sqrt[3]{2} - 4\sqrt[3]{2} + 28\sqrt[3]{2}$   
 $= 9\sqrt[3]{2}$  Ans: D

09  $x = \sqrt{24} = 2\sqrt{6}$ ,  $y = \sqrt{150} = 5\sqrt{6}$   
 $B = \sqrt{96} = 4\sqrt{6}$ ,  $A = \sqrt{54} = 3\sqrt{6}$   
 $\frac{x+y}{A+B} = \frac{7\sqrt{6}}{7\sqrt{6}} = 1$  Ans: A

10  ~~$x = \sqrt{53} = \sqrt{5 \times 27}$ ,  $y = \sqrt{32} = \sqrt{5 \times 32}$~~   
 ~~$\frac{x}{y} \times (x \times y) = \frac{\sqrt{5 \times 27}}{\sqrt{5 \times 32}}$~~

10.  $x = \sqrt[5]{3}$ ,  $y = \sqrt[3]{2}$

$x = \sqrt[15]{27}$ ,  $y = \sqrt[15]{32}$

$$\frac{x}{y} (x \times y) = \sqrt[15]{\frac{27}{32}} \times \sqrt[15]{27 \times 32}$$

$$= \sqrt[15]{(27)^2}$$

$$= \sqrt[15]{729}$$

Ans: C

JEE ADVANCED

01.  $(a^{\frac{3}{2}})^2 - (2)^2 = 23$

$$\Rightarrow a^3 = 27$$

$$\Rightarrow a = 3 \text{ or } \sqrt[3]{27}$$

Ans: A, B

02.  $x = 125^3$ ,  $y = 7^4$ ,  $z = 5^5$

$$xyz = 5^3 \times 7^4 \times 5^5 = 5^8 \times 7^4$$

$$\sqrt[4]{xyz} = \sqrt[4]{5^8 \times 7^4} = 5^2 \times 7 = 175$$

Ans: A



03. Statement I:  $\sqrt[8]{24} \div \sqrt[2]{3} \cdot \sqrt[4]{2}$

(13)

$$= \frac{\sqrt[8]{24}}{\sqrt[8]{3^4 \times 2^2}}$$

$$= \sqrt[2]{\frac{24}{81 \times 4}}$$

$$= \sqrt[8]{\frac{2}{27}} \quad (\text{True})$$

Statement II:

$$(\sqrt{2} + 2)^2 = (\sqrt{2})^2 + 2^2 + 2 \cdot \sqrt{2} \cdot 2$$

$$= 2 + 4 + 4\sqrt{2} = 6 + 4\sqrt{2} \quad (\text{False})$$

Ans: ☒ C

04. Statement I:

~~$$x = 4^4, y = 3^2$$~~

$$x^{\frac{1}{4}} + y^{\frac{5}{2}} = 4 + 3^5 = 243 + 4 = 247 \quad (\text{False})$$

Statement II:

$$x = 2^4, y = 3^4, z = 6^4$$

$$xyz = (2 \times 3 \times 6)^4 = (36)^4$$

$$\sqrt{xyz} = (36)^2 \quad (\text{False})$$

Ans: ☐ D

05 Assertion: Conceptual (True) (14)  
Reason: Conceptual (True) Ans: A

06 Assertion:  $\sqrt{3} \times \sqrt{12} = \sqrt{36} = 6$  (True)  
Reason: Conceptual (False) Ans: C

07 
$$\frac{\sqrt[10]{x^3}}{\sqrt[20]{y^7}} = \frac{\sqrt[20]{x^6}}{\sqrt[20]{y^7}} = \sqrt[20]{\frac{x^6}{y^7}}$$
 Ans: B

08 
$$\frac{\sqrt[15]{x^2}}{\sqrt[90]{x^7}} = \frac{\sqrt[90]{x^12}}{\sqrt[90]{x^7}} = \sqrt[90]{x^5}$$
 Ans: B

09  $x = a^{\frac{p}{mn}}, y = a^{\frac{n}{pq}}$   
 $xy = a^{\frac{p}{mn} + \frac{n}{pq}}$  Ans: A

10  $\frac{x}{y} = a^{\frac{p}{mn} - \frac{n}{pq}}$  Ans: B

11.  $\frac{m+1}{m+20} = \frac{8}{27} \Rightarrow m = 7$  Ans: 7

12.  $a^2 + b^2 = (a+b)^2 - 2ab = (4\sqrt{5})^2 - 2[20 - 18]$   
 $= 80 - 4$   
 $= 76$  Ans: 76



$$13) a) \sqrt{8} \times \sqrt{2} = \sqrt{16} = 4 (s)$$

(15)

$$b) \sqrt[3]{2 \times 2 \times 2} = \sqrt[3]{8} (t)$$

$$c) \frac{\sqrt[4]{2}}{\sqrt[4]{8}} = \frac{\sqrt[4]{1}}{\sqrt[4]{4}} = 1 (v)$$

$$d) \frac{s-3}{\sqrt{5} \times \sqrt{2}} = 0 (p)$$

Ans: s, t, v, p

$$14) a) \frac{\sqrt{15}}{\sqrt{3}} = \sqrt{\frac{15}{3}} = \sqrt{25} = 5 ( )$$

$$b) \sqrt{50} \times \sqrt{2} = \sqrt{100} = 10 (q)$$

$$c) \sqrt{18} + \sqrt{2} = 3\sqrt{2} + 2\sqrt{2} = 5\sqrt{2} (r)$$

$$d) \sqrt{20} - \sqrt{5} = 2\sqrt{5} - \sqrt{5} = \sqrt{5} (l)$$

$$(m) \sqrt{5} \times \sqrt{4} - \sqrt{5} = \sqrt{5} (\sqrt{4} - 1) (s)$$

Ans: → q, r, s

### ADDITIONAL PRACTICE QUESTIONS

$$01. (l+m)^2 + (l-m)^2 = (2\sqrt{2})^2 + (2\sqrt{2})^2$$

$$= 44$$

Ans: A

02.  $(5\sqrt{128} + 3\sqrt{12})(\sqrt{18} - \sqrt{27})$  (16)

$$= (40\sqrt{2} + 6\sqrt{3})(3\sqrt{2} - 3\sqrt{3})$$

$$= 240 - 120\sqrt{6} + 18\sqrt{6} - 54$$

$$= 186 - 102\sqrt{6}$$

Ans: D

03.  $\frac{\sqrt{288} \times \sqrt[3]{192} \times \sqrt[5]{160}}{\sqrt{72} \times \sqrt[3]{24} \times \sqrt[5]{2430}}$

$$= \frac{12\sqrt{2} \times 4\sqrt[3]{2} \times 2\sqrt[5]{5}}{\sqrt{72} \times \sqrt[3]{24} \times \sqrt[5]{2430}}$$

$$= \sqrt{\frac{288}{72}} \cdot \sqrt[3]{\frac{192}{24}} \cdot \sqrt[5]{\frac{160}{2430}}$$

$$= \sqrt{4} \cdot \sqrt[3]{8} \cdot \frac{2\sqrt[5]{5}}{3\sqrt[5]{10}}$$

$$= 2 \times 2 \times 2 \times \frac{\sqrt[5]{5}}{3\sqrt[5]{10}} = \frac{8}{3\sqrt[5]{2}}$$

Ans: C

Ans: C

04.  $\sqrt[3]{5x-4} = 6$

$$\Rightarrow 5x-4 = 216$$

$$\Rightarrow 5x = 220$$

$$\Rightarrow x = 44$$

Ans: B



06  $\sqrt[4]{2x+11} = \sqrt{5}$

$$\Rightarrow 2x+11 = (\sqrt{5})^4 = 5^2 = 25$$

$$\Rightarrow 2x = 14$$

$$\Rightarrow x = 7$$

Ans. C

06  $x+3=8$  |  $y-4=4$

$$x=5$$
 |  $y=8$

$24x+y = 128$ ,  $47x+y$  ~~+5~~ = ~~248~~ ~~243~~

$$\sqrt[7]{24x+y} = \sqrt[7]{128} = 2$$

$$\sqrt[5]{248} = 3$$

$$\therefore \sqrt[3]{2+3} = \sqrt[3]{5}$$

Ans: C

07  $\frac{\sqrt[35]{x^{14}}}{\sqrt[35]{y^{15}}} = \sqrt[35]{\frac{x^{14}}{y^{15}}}$

Ans: A

08  $x^2 - y^2 = (x+y)(x-y)$

Ans. D

09  $\sqrt{(\sqrt{a} + \sqrt{b} + \sqrt{c})^2} = \sqrt{a} + \sqrt{b} + \sqrt{c}$

Ans: D

10.  $a=16$ ,  $b=3^5$ ,  $c=3^3$

$$abc = 2^4 \cdot 3^5 \cdot 3^3 = 2^4 \cdot 3^8$$

$$\sqrt{abc} = 2^2 \times 3^4$$

$$= 4 \times 81$$

$$= 324$$

Ans. A

THANKS