Sagar Shivastava
(1900290100127)

APTITUDE - WEEK 4

SQUARE ROOT & CUBE ROOT

① The cube root of 0.000216 is :-

a) .6
~~b)~~ .06
c) 77
d) 87

Solution ⇒ $(.000216)^{1/3} = \left(\frac{216}{10^6}\right)^{1/3} = \frac{6}{100} = \boxed{0.06}$

② Find x, $\frac{x}{\sqrt{128}} = \frac{\sqrt{162}}{x}$

a) 12
b) 14
~~c)~~ 144
d) 196

Solution ⇒ $x^2 = \sqrt{162 \times 128} = \sqrt{20736} = 144$

③ The least perfect square, which is divisible by each of 21, 36 and 66 is :

~~a)~~ 213444   b) 214344   c) 214434   d) 231444

LCM (21, 36, 66) = 2772

Now, 2772 = $2 \times 2 \times 3 \times 3 \times 7 \times 11$

To make it a perfect square, it must be multiplied by 7×11

$\Rightarrow$ Req. No = $2^2 \times 3^2 \times 7^2 \times 11^2 = \boxed{213444}$

(4) $\sqrt{1.5625} = ?$

a) 1.05
~~b)~~ 1.25
c) 1.45
d) 1.55

Solution $\Rightarrow$ 1.25

(5) If $3\sqrt{5} + \sqrt{125} = 17.88$, then what will be the value of $\sqrt{80} + 6\sqrt{5}$?

a) 13.41
b) 20.46
c) 21.66
~~d)~~ 22.35

classmate
Date
Page

Solution

$3\sqrt{5} + \sqrt{125} = 17.88$

$3\sqrt{5} + \sqrt{25 \times 5} = 17.88$

$3\sqrt{5} + 5\sqrt{5} = 17.88$

$8\sqrt{5} = 17.88$

$\sqrt{5} = 2.235$

$\therefore \sqrt{80} + 6\sqrt{5} = \sqrt{16 \times 5} + 6\sqrt{5} = 4\sqrt{5} + 6\sqrt{5}$

$= 10\sqrt{5} = \boxed{22.35}$

(6) If $a = 0.1039$, then the value of $\sqrt{4a^2 - 4a + 1} + 3a$

a) 0.1039
b) 0.2078
c) 1.1039
d) 2.1039

Solution

$\sqrt{4a^2 - 4a + 1} + 3a = \sqrt{1^2 + (2a)^2 - 2 \times 1 \times 2a} + 3a$

$= \sqrt{(1-2a)^2} + 3a = 1 - 2a + 3a$

$= 1 + a$

$= 1 + 0.1039$

$= \boxed{1.1039}$

classmate

Date
Page

(7) If $x = \frac{\sqrt{3}+1}{\sqrt{3}-1}$ and $y = \frac{\sqrt{3}-1}{\sqrt{3}+1}$, then the value of (x^2+y^2) is :

a) 10 b) 13 c) 14 d) 15.

Solution

$$x = \frac{\sqrt{3}+1}{\sqrt{3}-1} \times \frac{\sqrt{3}+1}{\sqrt{3}+1} = \frac{3+1+2\sqrt{3}}{2} = \boxed{2+\sqrt{3}}$$

$$y = \frac{\sqrt{3}-1}{\sqrt{3}+1} = \frac{3+1-2\sqrt{3}}{2} = \boxed{2-\sqrt{3}}$$

$$\therefore x^2+y^2 = (2+\sqrt{3})^2 + (2-\sqrt{3})^2 = 2(4+3) = \boxed{14}$$

(9) The square root of $(7+3\sqrt{5})(7-3\sqrt{5})$ is

a) $\sqrt{5}$
b) 2
c) 4
d) $3\sqrt{5}$

Solution

$$\sqrt{(7+3\sqrt{5})(7-3\sqrt{5})} = \sqrt{49-45} = \sqrt{4} = \boxed{2}$$

classmate

Date

Page

(9) If $\sqrt{5} = 2.236$, then the value of $\frac{\sqrt{5}}{2} - \frac{10}{\sqrt{5}} + \sqrt{125}$ is equal to:

a) 5.59 ✓b) 7.826 c) 8.944 d) 10.062

Solution

$$\frac{\sqrt{5}}{2} - \frac{10}{\sqrt{5}} + \sqrt{125} = \frac{(\sqrt{5})^2 - 20 + 2\sqrt{5} \times 5\sqrt{5}}{2\sqrt{5}}$$

$$= \frac{5 - 20 + 50}{2\sqrt{5}} = \frac{35\sqrt{5}}{10} = 7 \times 1.118$$

$$= \boxed{7.826}$$

(10) $\left(\frac{\sqrt{625}}{11} \times \frac{14}{\sqrt{25}} \times \frac{11}{\sqrt{196}}\right)$ is equal to:

✓a) 5 b) 6 c) 8 d) 11

Solution

$$\frac{\cancel{25}^{5}}{\cancel{11}} \times \frac{\cancel{14}}{\cancel{5}} \times \frac{\cancel{11}}{\cancel{14}} \Rightarrow \boxed{5}$$