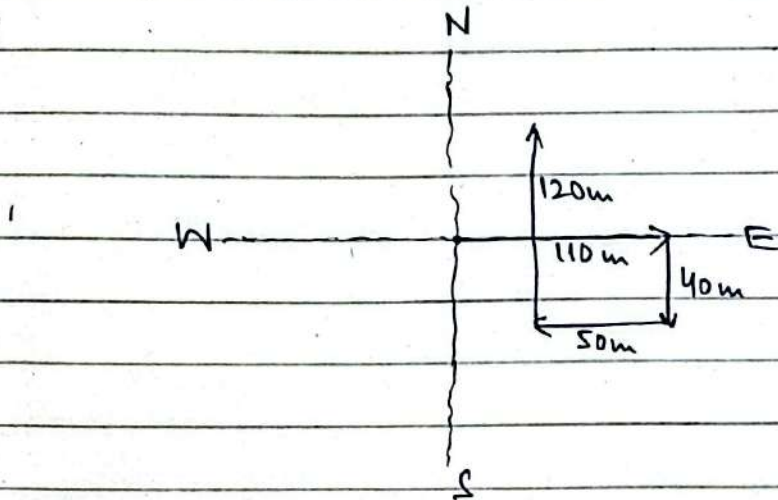


CSS-2022
Part-II
Section-B

Q=6

(a) For his morning walk Aslam went 110 meters towards east from his house and then turned right to keep walking for 40 meters before turning right again. After continuing to walk for 50 more meters, he turned right again and kept walking for another 120 meters, before he sat down on a bench at the park. How far was the bench located from his house? [5]

Ans



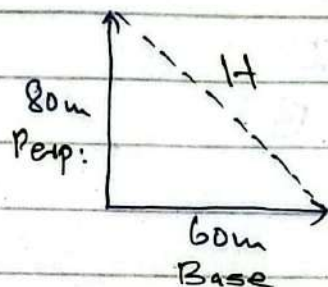
Now: Subtraction of Vectors;

(i) $\xrightarrow{110\text{m}}$ $\xleftarrow{50\text{m}}$ $=$ $\xrightarrow{60\text{m}}$

(ii) $\downarrow 40\text{m}$ $\xrightarrow{120\text{m}}$ $=$ $\uparrow 80\text{m}$

\Rightarrow P.T.O

Now



Apply Pythagoras Theorem;

$$H = \sqrt{B^2 + P^2}$$

$$H = \sqrt{(60)^2 + (80)^2} = \sqrt{3600 + 6400}$$

$$H = \sqrt{10000}$$

$$H = 100m$$

Hence, Bench. is 100m far from his house.

Ans

Q. 7

(a) The sum of three consecutive odd numbers is 273. What are the three odd numbers? [5]

Ans

$$\text{Number 1} = n$$

$$\text{Number 2} = n + 2$$

$$\text{Number 3} = n + 4$$

→ P.T.O

Now; Sum of three consecutive odd numbers;

$$n + n+2 + n+4 = 273$$

$$3n + 6 = 273$$

$$3n = 273 - 6 = 267$$

$$n = \frac{267}{3}$$

$$\boxed{n = 89}$$

Now put the value of $n = 89$ in equations.

$$\text{Number 1} = 89$$

$$\text{Number 2} = n+2 = 89+2 = 91$$

$$\text{Number 3} = n+4 = 89+4 = 93$$

Hence; Numbers are 89, 91, 93

Ans

Q. 7

(b) Find the missing number in the given series:

(i) 4, 16, 36, 64, ?, 144 (ii) 30, 29, 27, ?, 20, 15

(iii) 1, 7, 15, 25, ?, 51 (iv) 0, 2, 6, 12, 20, 30, ?

(v) 48, 24, 72, 36, 108, ?

[5]

⇒ P.S.O

Ans:

(i) 4, 16, 36, 64, ?, 144.

Sol:

$$4, 16, 36, 64, \underline{100}, 144$$

$\underbrace{\quad\quad}_{+12}$
 $\underbrace{\quad\quad}_{+20}$
 $\underbrace{\quad\quad}_{+28}$
 $\underbrace{\quad\quad}_{+36}$

explain the logics in the form of statements as well.....

(ii) 30, 29, 27, ?, 20, 15.

Sol:

$$30, 29, 27, \underline{24}, 20, 15.$$

$$\underbrace{(30, 29)}_{-1} \quad \underbrace{(27, 24)}_{-3} \quad \underbrace{(20, 15)}_{-5}$$

(iii) 1, 7, 15, 25, ?, 51.

Sol:

$$1, 7, 15, 25, \underline{37}, 51$$

$\underbrace{\quad\quad}_{+6}$
 $\underbrace{\quad\quad}_{+8}$
 $\underbrace{\quad\quad}_{+10}$
 $\underbrace{\quad\quad}_{+12}$

(iv) 0, 2, 6, 12, 20, 30, ?

Sol:

$$0, 2, 6, 12, 20, 30, \underline{42}$$

$\underbrace{\quad\quad}_{+2}$
 $\underbrace{\quad\quad}_{+4}$
 $\underbrace{\quad\quad}_{+6}$
 $\underbrace{\quad\quad}_{+8}$
 $\underbrace{\quad\quad}_{+10}$
 $\underbrace{\quad\quad}_{+12}$

(v) 48, 24, 72, 36, 108, ?

Sol:

$$48, 24, 72, 36, 108, \underline{54}$$

$$\underbrace{(48, 24)}_{48 \div 2} \quad \underbrace{(72, 36)}_{72 \div 2} \quad \underbrace{(108, 54)}_{108 \div 2}$$

(3)

Q.08

(d) If in a certain language, BROTHER is written as QDGSNQA, then in the same language, SISTER would be written as...?

Ans

[5]

2 18 15 20 8 5 18 17 4 7 19 14 17 1
 BROTHER : Q D G S N Q A

19 9 19 20 5 18
 SISTER : Q D S R H R

(3)

CSS-2023
 Part-II
 Section-B

Q.6

(b) Find the missing number in the series below:

(i) 1, 8, 4, 27, 9, ? (ii) 3, 6, 8, 16, 18, ?

(iii) 2, 8, 512, ? (iv) 81, 9, 64, 8, ?, 12

(v) 6, 11, 21, 36, 56, ?

[5]

Ans (i) 1, 8, 4, 27, 9, ?

cy 2^3 3^3 4^3
 1, 8, 4, 27, 9, 64

Ans

⇒ P.T.O

(iii) 3, 6, 8, 16, 18, ?

Sol

3, 6, 8, 16, 18, 36

3×2 $6 + 2$ 8×2 $16 + 2$ 18×2

Ans

(iv) 2, 8, 512, ?

Sol

2, 8, 512, 2048

2^1 2^3 2^9 2^{11}

(v) 81, 9, 64, 8, 7, 12

Sol

81, 9, 64, 8, 144, 12

(81, 9) (64, 8) (144, 12)

$81 \div 9$ $64 \div 8$ $144 \div 12$

(vi) 6, 11, 21, 36, 56, ?

Sol

6, 11, 21, 36, 56, 81

$+5$ $+10$ $+15$ $+20$ $+25$

Ans

CSS-2024
Part-II
Section-B

Q. 6

(c) Find the missing numbers in the series below;

(i) $121, 11, 81, 9, ?, 7$

(ii) $100, 50, 25, ?, 6.25$

(iii) $4, 9, 64, 125, 1296, ?$

(iv) $2, 5, 12, 24, 48, ?$

(v) $44, 22, 66, 33, 132, ?$

[5]

Ans

(i) $121, 11, 81, 9, ?, 7$

Sol

$$121, 11, 81, 9, 49, 7$$

$$11^2, 11, 9^2, 9, 7^2, 7$$

(ii) $100, 50, 25, ?, 6.25$

Sol

$$100, 50, 25, 12.5, 6.25$$

$$\frac{100}{2}, \frac{50}{2}, \frac{25}{2}$$

(iii) $4, 9, 64, 125, 1296, ?$

Sol

$$2^2, 3^2, 4^3, 5^3, 6^4, 7^4$$

$$4, 9, 64, 125, 1296, 2401$$

Ans

⇒ P.T.O

(iv) 2, 5, 12, 24, 48, _____

Sol

2, 5, 12, 24, 48, 96

$$2^1 + 0 = 2$$

$$2^2 + 1 = 5$$

$$2^3 + 4 = 12$$

$$2^4 + 8 = 24$$

$$2^5 + 16 = 48$$

$$2^6 + 32 = 96$$

Ans

(v) 44, 22, 66, 33, 132, _____

Sol

44, 22, 66, 33, 132, 66

(44, 22) (66, 33) (132, 66)

$44 \div 2$ $66 \div 2$ $132 \div 2$

Ans

(4)

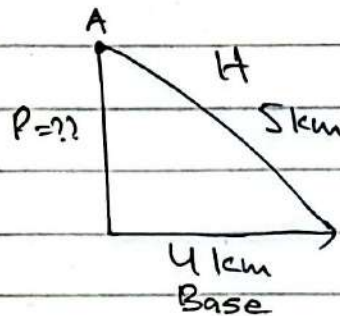
Q. 7

(a) A man travels over the path of a right-angle triangle having base and hypotenuse 4 and 5 km, respectively. After a complete round he continues in the same direction for 6 km and then turns at 90 degree and continues for another 8 km. How long he has travelled and how far he is from his starting point?

Ans

[5]

Step #01



First to find Perpendicular;

Apply Pythagoras Theorem:

$$H^2 = B^2 + P^2$$

$$P = \sqrt{H^2 - B^2}$$

$$P = \sqrt{5^2 - 4^2}$$

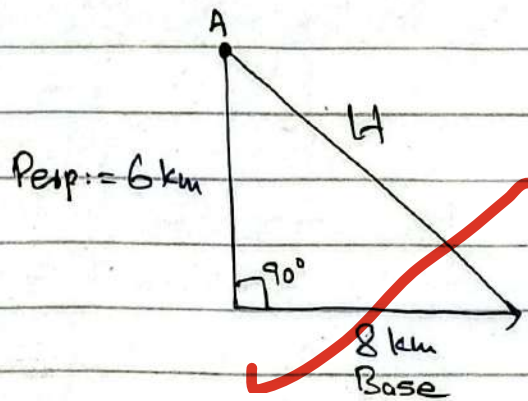
$$P = \sqrt{25 - 16}$$

$$P = \sqrt{9}$$

$$P = 3 \text{ km}$$

AnsNowP.T.O

Step #02



Now ; Find Hypotenous by applying Pythagoras Theorem:

$$H = \sqrt{B^2 + P^2}$$

$$H = \sqrt{(8)^2 + (6)^2}$$

$$H = \sqrt{64 + 36}$$

$$H = \sqrt{100}$$

$$H = 10 \text{ km.}$$

5)

Now (i) How long he has travelled;

We Sum-up all the distance:

$$\text{Total distance} = 3 + 4 + 5 + 6 + 8 = 26 \text{ km.}$$

he covered

Hence; He travelled 26 km.

Now (ii) How far he is from starting point?

Hence; He is 10 km far from starting point.

Ans

CSS-2025

Part - II

Section - B

Q. 7

(d) Arrange the following fractions in the descending order.

(a) $\frac{7}{12}, \frac{4}{7}, \frac{9}{14}, \frac{25}{42}$

(b) $\frac{5}{8}, \frac{7}{12}, \frac{5}{9}, \frac{13}{24}$

(c) $\frac{6}{35}, \frac{5}{21}, \frac{2}{7}, \frac{4}{15}$

(d) $\frac{2}{5}, \frac{6}{11}, \frac{7}{15}, \frac{9}{20}, \frac{13}{25}$

(e) $\frac{1}{5}, \frac{2}{7}, \frac{3}{8}, \frac{4}{13}, \frac{5}{17}$

Ans (a) $\frac{7}{12}, \frac{4}{7}, \frac{9}{14}, \frac{25}{42}$

Soln Descending Order

$\frac{9}{14}, \frac{25}{42}, \frac{7}{12}, \frac{4}{7}$

(b) $\frac{5}{8}, \frac{7}{12}, \frac{5}{9}, \frac{13}{24}$

Soln Descending Order.

$\frac{5}{8}, \frac{7}{12}, \frac{5}{9}, \frac{13}{24}$

⇒ P.T.O

(c) $\frac{6}{35}, \frac{5}{21}, \frac{2}{7}, \frac{4}{15}$

Soln Descending Order

$\frac{2}{7}, \frac{4}{15}, \frac{5}{21}, \frac{6}{35}$

(d) $\frac{2}{5}, \frac{6}{11}, \frac{7}{15}, \frac{9}{20}, \frac{13}{25}$

Soln Descending Order.

$\frac{2}{5}, \frac{6}{11}, \frac{13}{25}, \frac{7}{15}, \frac{9}{20}$

(e) $\frac{1}{5}, \frac{2}{7}, \frac{3}{8}, \frac{4}{13}, \frac{5}{17}$

Soln Descending Order

$\frac{1}{5}, \frac{3}{8}, \frac{4}{13}, \frac{5}{17}, \frac{2}{7}$

4