Q.1 14, 15, 11, 20, ?, 29

A. 6
B. 25
C. 4
D. 20
E. None of these

1   4   9
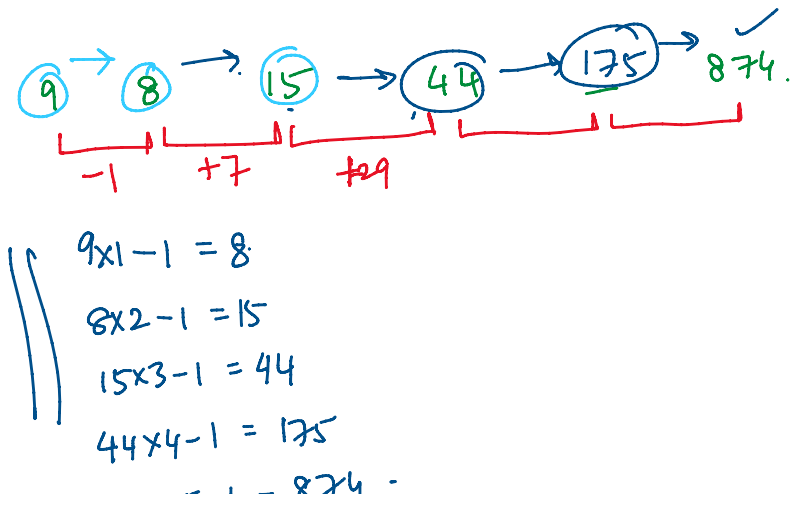
14   15   11   20   4   29
+1   -4   +9   -16   +25

3   5   7   9
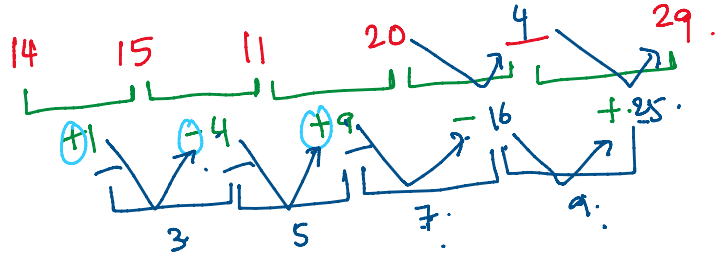
Q.3 14, 33, 71, 147, 299, ?

A. 633
B. 599
C. 613
D. 512
E. 603

14   33   71   147   299

19   38   76   152   304

19   38   76   152

299 +
304
603
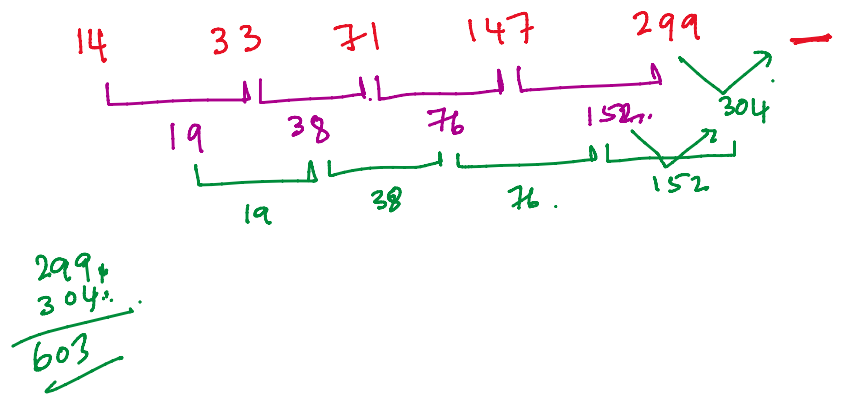
Q.4 9, 8, 15, 44, ?, 874

A. 165
B. 185
C. 175
D. 195
E. 205

9 → 8 → 15 → 44 → 175 → 874

-1   +7   +29

$9 \times 1 - 1 = 8$
$8 \times 2 - 1 = 15$
$15 \times 3 - 1 = 44$
$44 \times 4 - 1 = 175$
$\quad - \quad = 874$

11

$44 \times 4 - 1 = 175$

$175 \times 5 - 1 = 874$.

John travelled from his town to city. John went to city by bicycle at the speed of 25 km/h and came back at the speed of 4 km/h. If John took 5 hours and 48 min to complete his journey, what is the distance between town and city ?
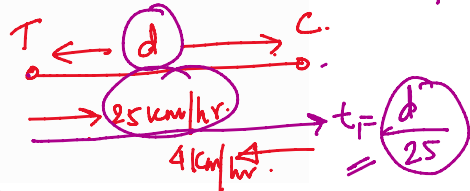
a. 15 km
b. 22 km
c. 20 km
d. 25 km

$48 \text{ min} = \dfrac{48}{60} \text{ hrs.}$

Definition of Speed

$\text{Speed} = \dfrac{\text{Distance}}{\text{Time}}$

$S = \dfrac{d}{t}$

$t = \dfrac{d}{S}$

$t_1 = \dfrac{d}{25}$

$t_1 + t_2 = 5 \text{ hr } 48 \text{ min.}$

$= 5 + \dfrac{4}{5}$

$\dfrac{d}{25} + \dfrac{d}{4} = \dfrac{29}{5}$

$t_2 = \dfrac{d}{4}$

$\dfrac{5 \times 5 + 4}{5}$

Total time = 5 hr 48 min

60 min = 1 hr.

1 min =

$\dfrac{29d}{100} = \dfrac{29}{5}$
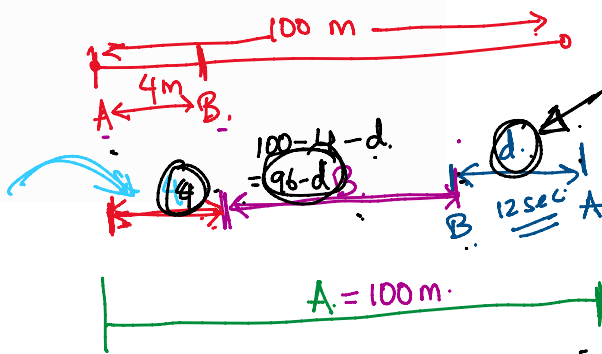
$d = \dfrac{29}{5} \times \dfrac{100}{29}^{20}$

In a 100 m race A runs at a speed of 1.66 m/s. If A gives a start of 4m to B and still beats him by 12 seconds. What is the speed of B ?

a. 1 m/s
b. 1.33 m/s
c. 1.25 m/s
d. 1.5 m/s

$T = \dfrac{d}{S}$

100 m
4m
A ← → B.
$100 - 4 - d.$
$= 96 - d$
B 12 sec A
A = 100 m.

∴ Time taken by A $= \dfrac{100}{1.66}$

∴ Time taken by B $= \dfrac{96 - d}{B}$

Time taken by A = time taken by B.

$1.66 = 1 + \dfrac{2}{3}$

$= \dfrac{5}{3}$

$\dfrac{100}{1.66} = \dfrac{96 - d}{B} = \dfrac{96 - 12B}{B}$

$\dfrac{100}{\frac{5}{3}} = \dfrac{96 - 12B}{B}$

$\dfrac{d}{B} = 12.$ $d = 12B$

$\dfrac{\overset{60}{300}}{\underset{5}{}} = \dfrac{96 - 12B}{B}$

$60B = 96 - 12B.$

$$\frac{\cdots}{\frac{5}{3}} = \frac{\cdots}{B.}$$

$$B = \frac{96}{72} = \frac{4}{3} = 1.33$$

$$\not{B} \qquad B.$$

$$60B = 96 - 12B,$$

$$72B = 96.$$

In a kilometer race, A beats B by 100 meters. B beats C by 100 meters. By how much meters does A beat C in the same race ?

a. 200 meters

b. 180 meters

c. 190 meters

d. 210 meters

B as a % of A is equal to A as a % of (A+B). Find B as a % of A.

Ques 2. If the price of petrol increased by 25% and Raj intends to spend only an additional 15% on petrol, by how much will he reduce the quantity of petrol purchased?

Ques 3. A candidate who got 20% marks fails by 10 marks but another candidate who gets 42% marks get 12% more than the passing marks. Find the maximum.

3. In the following question two equations (A) and (B) given. You have to solve both:
I. $3a^2 + 17\sqrt{3}a + 72 = 0$
II. $b^2 + 1b - 30 = 0$
A. If $a = b$
B. If $a \leq b$
C. If $a > b$
D. If $a \geq b$
E. If $a < b$

1.333 + 1.25/1.333 -1.25 is nearly equal to

(a) 13

(b) 31

(c) 21

(d) 33

Out of 25/27, 19/20, 13/15, 18/19, 17/18 which is the greatest in magnitude ?

(a)25/27

(b) 19/20

(c) 13/15

(d) 17/18

[4-5 + { 1-(4 -3 +1)}] of 100% equals

(a) 50%

(b) -1%

(c) zero

(d) 100%

Q4. The ratio of two number is 5:6, if their H,C.F. is 9 and L.C.M. is 270. Find the numbers.

a) 72,63 b) 81,108 c) 45,54 d) 225,108

Q3. The L.C.M of the fraction of $2/3, 4/9, 5/6, 7/12$ is:

a) $35/9$ b) $1/36$ c) $1/18$ d) $140/3$

Q6. Find the least number which when divided by 4,6,7,8,9,12. leaves the same remainder 3 in each case.
a) 504 b) 501 c) 507 d) 506

Q7. The smallest number which is divisible by 12,15,20 and is a perfect square is:
a) 400 b) 900 c) 1600 d) 3600

A man takes 3 hours 45 minutes to row a boat 15 km downstream of a river and 2 hours 30 minutes to cover a distance of 5 km upstream. Find the speed of the river current in km/hr.
a) 1 km/hr
b) 3km/hr
c) 5 km/hr
d) 9 km/hr
e) None of The Above

At his usual rowing rate, Rahul can travel 12 miles downstream in a certain river in 6 hours less than it takes him to travel the same distance upstream. But if he could double his usual rowing rate for his 24 mile round trip, the downstream 12 miles would then take only one hour less than the upstream 12 miles. What is the speed of the current in miles per hour?
a) 1 (1/3)
b) 1 (2/3)
c) 2 (1/3)
d) 2 (2/3)
e) None of The Above

Prithviraj takes twice as long to row a distance against the stream as to row the same distance in favor of the stream. The ratio of the speed of the boat (in still water) and the stream is:

a) 2 : 1

b) 3 : 1

c) 3 : 2

d) 4 : 3

e) None of The Above

**Q5)** Find the area of the shaded portion of the given figure (not drawn to scale).
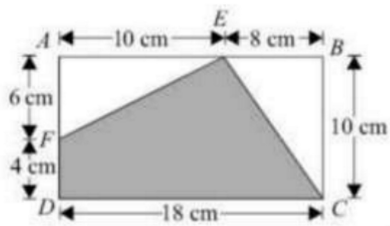
Q6) The figure (not drawn to scale), shows a triangular plot of a land, ABC. AC is a straight line. Find the area of plot of land. **[2017]**
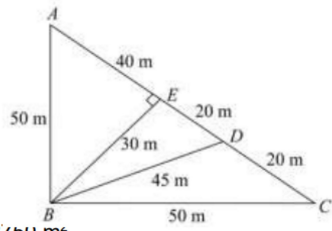
a) 2750 m²
b) 1200 m²
c) 2000 m²
d) 1500 m²

Q7) The given figure is formed by 2 quarter circles and the area of the shaded square is 49 cm². Find the perimeter of the figure (take π = 22/7). **[2016]**
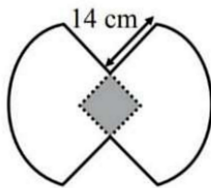
a)
b) 108 cm
c) 86 cm
d) 94 cm

Time and Work

a men and b women complete a work in x days.

c " " d " " the " " y days.

In how many days will p men and q women do this work?

Work = No of people × no of days

Total Work = $\boxed{(aM + bW)x = (cM + dW)y} = (pM + qW) \times N$

$(4M + 6W)20$

M : W = ?   M : W = 2:3

3M = 2W

Total Work = 13M × 20