Quiz Date: 20th September 2020

Directions (1-6): Study the line graph carefully and answer the following questions.
The line graph shows the runs scored by two different teams in a series of 5 cricket matches.

Runs scored by England and Australia against each other
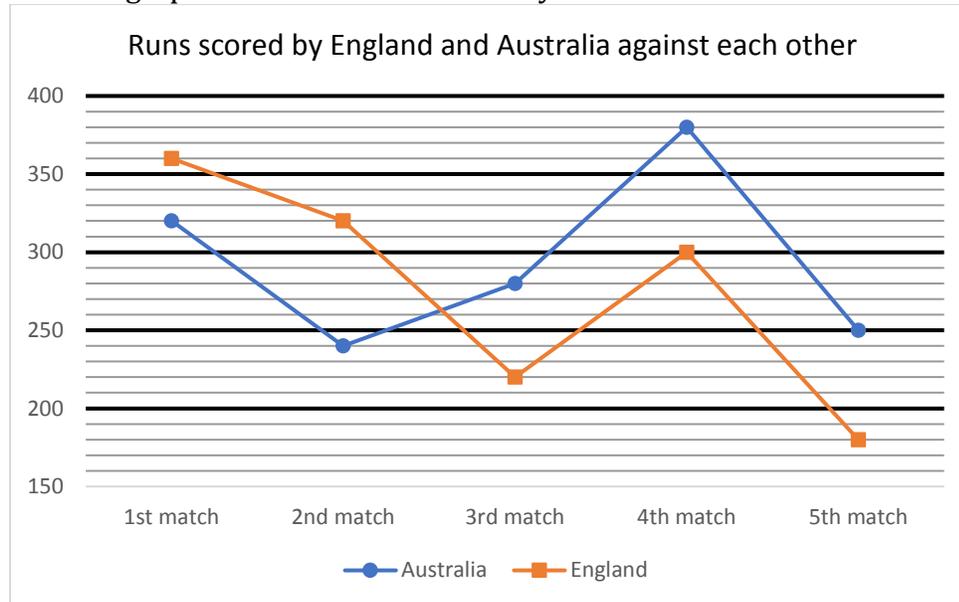
Q1. Runs scored by Australia in first and third match together is what percent of runs scored by England in second and fifth match together?
(a) 100%
(b) 125%
(c) $83\frac{1}{3}$%
(d) 120%
(e) 75%

Q2. Find the difference between maximum runs scored by England and minimum runs scored by Australia.
(a) 120 runs
(b) 80 runs
(c) 150 runs
(d) 200 runs
(e) 180 runs

Q3. What is the ratio between total runs scored by Australia to that of England in all matches?
(a) 25 : 23
(b) 46 : 47
(c) 43 : 46
(d) 49 : 46
(e) 23 : 43

Q4. Runs scored by Australia in second match is what percent more or less than runs scored by England in fourth match?
(a) 25%
(b) 20%
(c) 35%
(d) 10%
(e) 50%

Q5. Australia won how many matches out of all the five matches?
(a) 1
(b) 4
(c) 3
(d) 5
(e) 2

Q6. What are the average runs scored by England in first four matches?
(a) 250
(b) 280
(c) 345
(d) 320
(e) 300
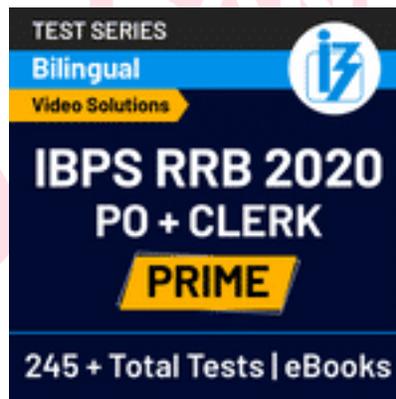
Q7. In an election between two candidates, one got 55% of total valid votes and 20% of the total votes casted were invalid. If total votes were 7500, then what is the number of valid votes that the other person got ?
(a) 2550
(b) 2670
(c) 2700
(d) 2850
(e) 2500

Q8. The price of petrol is increased by 25% by what percent should a car owner reduce the consumption of petrol so that his expenditure on petrol remains constant ?
(a) 18%
(b) 16%
(c) 15%

(d) 20%
(e) 14%

Q9. The average age of a class of 20 students increases by 2 when 4 new students join. If the original average age was 18 years, then find the sum of ages of four students who join. (in years)
(a) 125
(b) 112
(c) 115
(d) 120
(e) 108

Q10. A and B started a business with the investments in the ratio of 5 : 3 respectively. After 6 months from the start of the business, C joined them and the respective ratio between the investments of B and C was 2 : 3. If the annual profit earned by them was Rs. 12300, what was the difference between B's share and C's share in the profit ?
(a) Rs. 900
(b) Rs. 800
(c) Rs. 600
(d) Rs. 400
(e) Rs. 700

Q11. The manufacturer of an article makes a profit of 5%, the wholesale dealer makes a profit of 10%, and the retailer makes a profit of 15%. Find the manufacturing price of the article if the retailer sold it for Rs. 5313.
(a) Rs. 4000
(b) Rs. 4500
(c) Rs. 5000
(d) Rs. 4950
(e) Rs. 4200

Directions (12 – 15): In each of these questions, two equations (I) and (II) are given. You have to solve both the equations and answer the following questions.
(a) $x > y$
(b) $x \geq y$
(c) $x = y$ or no relation.
(d) $x < y$
(e) $x \leq y$

Q12. I. $2x^2 – 26x + 80 = 0$
II. $2y^2 – 38y + 176 = 0$

Q13. I. $7x – 9y + 51 = 0$
II. $13y – 11x – 63 = 0$

Q14. I. $x^{2/5} \times x^{3/5} \times 13872 = 12 \times x^3$

II. $\dfrac{y^{1/2}}{512} = \dfrac{64}{(y)^{5/2}}$

Q15. I. $x^2 + 25x + 156 = 0$
II. $y^2 + 21y + 110 = 0$

Solutions

Sol (1-6):
S1. Ans (d)
Sol. required percentage $= \dfrac{320+280}{320+180} \times 100$
$$= \dfrac{600}{500} \times 100 = 120\%$$

S2. Ans (a)
Sol. required difference $= 360 - 240 = 120\ runs$

S3. Ans (d)
Sol. required ratio $= \dfrac{320+240+280+380+250}{360+320+220+300+180} = \dfrac{1470}{1380}$
$$= \dfrac{49}{46}$$

S4. Ans (b)
Sol. required percentage $= \dfrac{300-240}{300} \times 100$
$$= 20\%$$

S5. Ans (c)
Sol. from graph, it is clearly visible that Australia won 3 matches i.e. third, fourth and fifth match.

S6. Ans (e)
Sol. required average $= \dfrac{360+320+220+300}{4} = \dfrac{1200}{4}$
$$= 300\ runs$$

S7. Ans.(c)

Sol.
No. of valid votes that other person got
$= \frac{45}{100} \times \frac{80}{100} \times 7500$
$= \frac{9}{20} \times \frac{4}{5} \times 7500$
$= 2700$

S8. Ans.(d)
Sol.
Using the formula,
% reduction in consumption
$= \frac{25}{(100+25)} \times 100$
$= 20\%$

S9. Ans.(d)
Sol.
Let, sum of ages of 4 new students is x years,
$\frac{20 \times 18 + x}{(20+4)} = (18 + 2)$
or, $360 + x = 24 \times 20$
or, $x = 480 - 360 = 120$ years

S10. Ans.(a)
Sol.
A : B = 5 : 3 = 10 : 6
B : C = 2 : 3 = 6 : 9
A : B : C = 10 : 6 : 9 or 10x:6x:9x
Ratio of profit $= (10x \times 12) : (6x \times 12): (9x \times 6)$
$= 20 : 12 : 9$
Required difference $= \frac{12-9}{41} \times 12300$
$= 900$ Rs.

S11. Ans.(a)
Sol.
Let the manufacturing price is Rs. MP
MP $\times \frac{105}{100} \times \frac{110}{100} \times \frac{115}{100} = 5313$
MP = Rs. 4000

S12. Ans.(e)
Sol.
I. $2x^2 - 26x + 80 = 0$
$x^2 - 13x + 40 = 0$
$x^2 - 5x - 8x + 40 = 0$
$x(x - 5) - 8 (x - 5) = 0$
$(x - 8) (x - 5) = 0$

x = 5, 8
II. $2y^2 - 38y + 176 = 0$
$y^2 - 19y + 88 = 0$
$y^2 - 8y - 11y + 88 = 0$
$y(y - 8) - 11(y - 8) = 0$
$(y - 8)(y - 11) = 0$
y = 8, 11
So, x ≤ y

S13. Ans.(d)
Sol. I. $7x - 9y + 51 = 0$
II. $13y - 11x - 63 = 0$
By multiplying I. by 11 and II. by 7
$$77x - 99y = -561$$
$$-77x + 91y = \ \ \ 441$$
$$\overline{\hspace{2cm}}$$
$$-8y = -120$$
y = 15, x = 12
So, y > x

S14. Ans.(c)
Sol. I. $x^{2/5} \times x^{3/5} \times 13872 = 12 \times x^3$
$x \times 13872 = 12 \times x^3$
$x^2 = 1156$
$x = \pm\ 34$
II. $\frac{y^{1/2}}{512} = \frac{64}{(y)^{5/2}}$
$y^{\frac{1}{2}+\frac{5}{2}} = 64 \times 512$
$y^3 = 64 \times 512$
$y = 64 \times 512$
$y = 4 \times 8 = 32$
So, no relation

S15. Ans.(d)
Sol. I. $x^2 + 25x + 156 = 0$
$x^2 + 12x + 13x + 156 = 0$
$x(x + 12) + 13(x + 12) = 0$
x = −12, −13
II. $y^2 + 21y + 110 = 0$
$y^2 + 11y + 10y + 110 = 0$
$y(y + 11) + 10(y + 11) = 0$
y = −10, −11
∴ y > x

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