Quiz Date: 28th July 2020

Directions (1-5): Find the wrong number in the given series:
Q1. 914,   1122,   1330,   1535,   1735,   1928,   2110
(a) 1122
(b) 1535
(c) 1928
(d) 914
(e) 2110

Q2.   2160,   360,   72,   18,   9,   3,   3
(a) 2160
(b) 18
(c) 360
(d) 72
(e) 9

Q3.   545,   520,   568,   499,   591,   476,   614
(a) 520
(b) 545
(c) 614
(d) 568
(e) 476

Q4.   192,   202,   210,   216,   225,   243,   288
(a) 210
(b) 202
(c) 288
(d) 192
(e) 243

Q5.   1250,   1263,   1280,   1299,   1322,   1353,   1382
(a) 1263
(b) 1382
(c) 1299
(d) 1353
(e) 1250

Q6.
I. $x^2 - 11x + 24 = 0$
II. $2y^2 - 9y + 9 = 0$
(a) If x > y
(b) if x ≥ y
(c) if x < y
(d) if x ≤ y

(e) if x = y or the relationship between x and y cannot be established.

I. $x^3 \times 13 = x^2 \times 247$

II. $y^{1/3} \times 14 = 294 \div y^{2/3}$

Q7.
(a) If x > y
(b) if x ≥ y
(c) if x < y
(d) if x ≤ y
(e) if x = y or the relationship between x and y cannot be established.

I. $\dfrac{12 \times 4}{x^{4/7}} - \dfrac{3 \times 4}{x^{4/7}} = x^{10/7}$

II. $y^3 + 783 = 999$

Q8.
(a) If x > y
(b) if x ≥ y
(c) if x < y
(d) if x ≤ y
(e) if x = y or the relationship between x and y cannot be established.
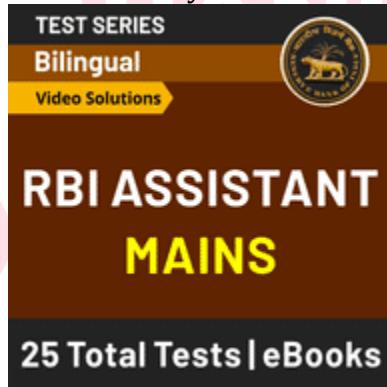
I. $x^2 - 13x - 48 = 0$

II. $y^2 - y - 72 = 0$

Q9.
(a) If x > y
(b) if x ≥ y
(c) if x < y
(d) if x ≤ y
(e) if x = y or the relationship between x and y cannot be established.

I. $14x^2 - 37x + 24 = 0$

II. $28y^2 - 53y = -24$

Q10.
(a) If x > y

(b) if x ≥ y
(c) if x < y
(d) if x ≤ y
(e) if x = y or the relationship between x and y cannot be established.

Directions (11-15): In each of these equations, two equations (I) and (II) are given. You have to solve both the equations and give answer among the following options.

I. $20x^2 - 9x + 1 = 0$
II. $12y^2 - 7y + 1 = 0$

Q11.
(a) x ≥ y
(b) x ≤ y
(c) x > y
(d) Relationship between x and y cannot be established
(e) x < y

I. $12x^2 = 6x$
II. $y^2 = 4$

Q12.
(a) x ≥ y
(b) x ≤ y
(c) x > y
(d) Relationship between x and y cannot be established
(e) x < y

I. $88x^2 - 19x + 1 = 0$
II. $132y^2 - 23y + 1 = 0$

Q13.
(a) x ≥ y
(b) x ≤ y
(c) x > y
(d) Relationship between x and y cannot be established
(e) x < y

I. $6x^2 - 7x + 2 = 0$
II. $20y^2 - 31y + 12 = 0$

Q14.
(a) x ≥ y
(b) x ≤ y
(c) x > y
(d) Relationship between x and y cannot be established
(e) x < y

I. $28x^2 - 8x - 11 = 0$

Q15. **II.** $28y^2 + 32y + 9 = 0$

(a) x ≥ y
(b) x ≤ y
(c) x > y
(d) Relationship between x and y cannot be established
(e) x < y

Solutions

S1. Ans.(d)
Sol.

912

| 914 | 1122 | 1330 | 1535 | 1735 | 1928 | 2110 |

+210   +208   +205   +200   +193   +182

−2   −3   −5   −7   −11

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S2. Ans.(e)
Sol.

6

| 2160 | 360 | 72 | 18 | 9 | 3 | 3 |

÷6   ÷5   ÷4   ÷3   ÷2   ÷1

S3. Ans.(a)
Sol.

522

| 545 | 520 | 568 | 499 | 591 | 476 | 614 |

−23   +46   −69   +92   −115   +138

S4. Ans.(b)

Sol.

```
         204
192     202      210     216     225     243     288
 └─┬─┘  └─┬─┘   └─┬─┘   └─┬─┘   └─┬─┘   └─┬─┘
   +12     +6      +6      +9      +18     +45
   └──┬──┘ └──┬──┘ └──┬──┘ └──┬──┘ └──┬──┘
     ×0.5    ×1     ×1.5    ×2     ×2.5
```

S5. Ans.(d)
Sol.

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                                1351
1250    1263    1280    1299    1322    1353    1382
 └──┬──┘ └──┬──┘ └──┬──┘ └──┬──┘ └──┬──┘ └──┬──┘
   +13     +17     +19     +23     +29     +31
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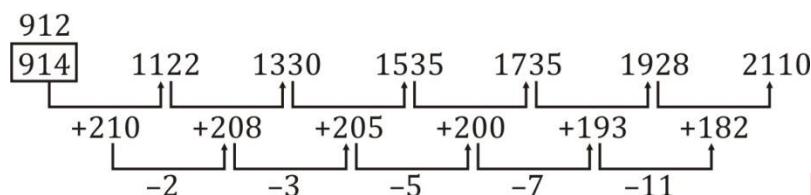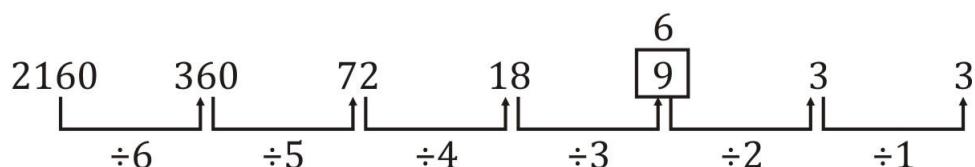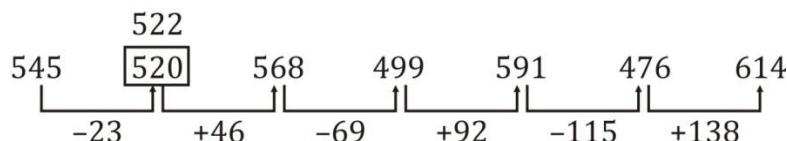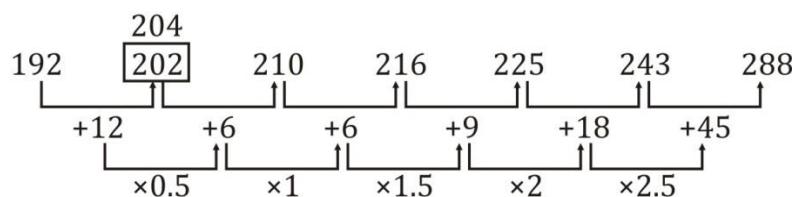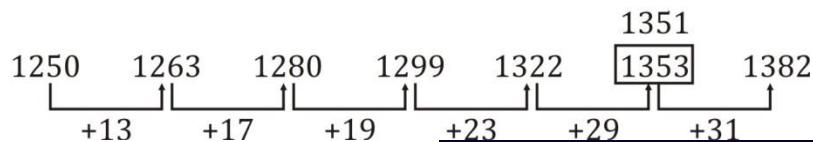
S6. Ans.(b)
Sol.

I. $x^2 - 8x - 3x + 24 = 0$ | II. $2y^2 - 6y - 3y + 9 = 0$
  $x = 3, 8$ | $y = 1.5, 3$
$\Rightarrow x \geq y$

S7. Ans.(c)
Sol.

I. $\dfrac{x^3}{x^2} = \dfrac{247}{13}$ | II. $y^{\frac{1}{3}+\frac{2}{3}} = \dfrac{294}{14}$
  $x = 19$ | $y = 21$
$\therefore x < y$

S8. Ans.(d)
Sol.

I. $\dfrac{48 - 12}{x^{\frac{4}{7}}} = x^{\frac{10}{7}}$ | II. $y^3 = 999 - 783$
  $x^2 = 36$ | $y^3 = 216$

  $x = \pm 6$ | $y = 6$
$\therefore x \leq y$

S9. Ans.(e)

(i) $x^2 - 13x - 48 = 0$
$x^2 - 16x + 3x - 48 = 0$
$x(x - 16) + 3(x - 16) = 0$
$(x + 3)(x - 16) = 0$
$x = -3, 16$

(ii) $y^2 - y - 72 = 0$
$y^2 - 9y + 8y - 72 = 0$
$y(y - 9) + 8(y - 9) = 0$
$(y + 8)(y - 9) = 0$
$y = -8, 9$

Sol.   No relation between x and y

S10. Ans.(b)

I. $14x^2 - 37x + 24 = 0$
$\Rightarrow 14x^2 - 16x - 21x + 24 = 0$
$\Rightarrow 2x(7x - 8) - 3(7x - 8) = 0$
$\Rightarrow x = \dfrac{3}{2}, \dfrac{8}{7}$

II. $28y^2 - 53y + 24 = 0$
$\Rightarrow 28y^2 - 53y + 24 = 0$
$\Rightarrow 28y^2 - 21y - 32y + 24 = 0$
$\Rightarrow 7y(4y - 3) - 8(4y - 3) = 0$
$y = \dfrac{8}{7}, \dfrac{3}{4}$

Sol. $x \geq y$

S11. Ans.(b)

I. $20x^2 - 9x + 1 = 0$
$\Rightarrow 20x^2 - 5x - 4x + 1 = 0$
$\Rightarrow 5x(4x-1) - 1(4x-1) = 0$
$\Rightarrow (4x-1)(5x-1) = 0$
$\Rightarrow x = \dfrac{1}{4}, \dfrac{1}{5}$
II. $12y^2 - 7y + 1 = 0$
$\Rightarrow 12y^2 - 4y - 3y + 1 = 0$
$\Rightarrow (3y-1)(4y-1) = 0$
$\Rightarrow y = \dfrac{1}{3}, \dfrac{1}{4}$

Sol. $y \geq x$

S12. Ans.(d)

I. $12x^2 - 6x = 0$

$\Rightarrow 6x\,(2x-1) = 0$

$\Rightarrow x = 0, \frac{1}{2}$

II. $y^2 = 4$

$y = -2$ or 2

No relation

Sol.

S13. Ans.(a)

I. $88x^2 - 19x + 1 = 0$

$\Rightarrow 88x^2 - 11x - 8x + 1 = 0$

$\Rightarrow 11x\,(8x-1) - 1\,(8x-1) = 0$

$\Rightarrow x = \frac{1}{8}, \frac{1}{11}$

II. $132\,y^2 - 23y + 1 = 0$

$\Rightarrow 132y^2 - 11y - 12y + 1 = 0$

$\Rightarrow (12y-1)\,(11y-1) = 0$

$\Rightarrow y = \frac{1}{12}, = \frac{1}{11}$

Sol. $x \geq y$

S14. Ans.(e)

I. $6x^2 - 7x + 2 = 0$

$\Rightarrow 6x^2 - 3x - 4x + 2 = 0$

$\Rightarrow 3x(2x-1) - 2(2x-1) = 0$

$\Rightarrow (2x-1)\,(3x-2) = 0$

$\Rightarrow x = \frac{1}{2}, \frac{2}{3}$

II. $20y^2 - 31y + 12 = 0$

$\Rightarrow 20y^2 - 15y - 16y + 12 = 0$

$\Rightarrow (4y-3)\,(5y-4) = 0$

$\Rightarrow y = \frac{3}{4}, \frac{4}{5}$

Sol. $y > x$

S15. Ans.(a)

I. $28x^2 - 8x - 11 = 0$

$\Rightarrow 28x^2 + 14x - 22x - 11 = 0$

$\Rightarrow 14x(2x+1) - 11(2x+1) = 0$

$\Rightarrow (14x-11)(2x+1) = 0$

$\Rightarrow x = \frac{11}{14}, -\frac{1}{2}$

II. $28y^2 + 32y + 9 = 0$

$\Rightarrow 28y^2 + 14y + 18y + 9 = 0$

$\Rightarrow (2y+1)(14y+9) = 0$

$\Rightarrow y = -\frac{1}{2}, -\frac{9}{14}$

Sol. $x \geq y$