Directions (1 - 4): Find the wrong number in the given series
1) 1, 2, 5, 16, 65, 328, 1957
   a) 65     
   b) 1957   
   c) 328    
   d) 16    
   e) 5
2) 4, 11, 25, 46, 74, 129, 151
   a) 151   
   b) 74   
   c) 46   
   d) 129   
   e) 25
3) 84, 96, 83, 95, 80, 94, 81
   a) 81    
   b) 80   
   c) 94   
   d) 95   
   e) 83
4) 3, 5, 8, 17, 33, 58, 94
   a) 5   
   b) 8   
   c) 17  
   d) 33  
   e) 58

5) A’s salary is one–third of B’s salary and each of them spend 15% of their salary for rent and remaining amount they had together is Rs. 40800, then find A’s rent amount
   a) Rs.1200   
   b) Rs.1500  
   c) Rs.1600  
   d) Rs.1800  
   e) Rs.1080

Directions (6 - 10): Study the following information carefully and answer the given questions.
The table shows the number of cell phones serviced by four different shops (A, B, C and D) in four different months (May, June, July and August).

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>May</td>
<td>424</td>
<td>668</td>
<td>525</td>
<td>216</td>
</tr>
<tr>
<td>June</td>
<td>516</td>
<td>454</td>
<td>252</td>
<td>309</td>
</tr>
<tr>
<td>July</td>
<td>328</td>
<td>712</td>
<td>363</td>
<td>439</td>
</tr>
<tr>
<td>August</td>
<td>224</td>
<td>384</td>
<td>486</td>
<td>618</td>
</tr>
</tbody>
</table>

6) What is the difference between the total cell phones serviced by shop A in all the months together to that of the
total cell phones serviced by shop C in all the months together?
a) 164  
b) 153  
c) 149  
d) 134  
e) None of these  

7) Number of x model cell phones serviced by shop B and C in June month is 48 and 64 respectively. What is the difference between the cell phones serviced by shop B and C in the same month other than the x model cell phones?
a) 218  
b) 296  
c) 323  
d) 418  
e) None of these  

8) Find the average number of cell phones serviced by shop A in all the given months together.  
a) 299  
b) 217  
c) 319  
d) 423  
e) 373  

9) What is the ratio of the total number of cell phones serviced by shop A and B in July together to that of the total number of cell phones serviced by shop C and D in August together?
a) 65: 69  
b) 63: 62  
c) 59: 57  
d) 43: 49  
e) 39: 41  

10) Total number of cell phones serviced by all the shops together in July is approximately what percentage of the total number of cell phones serviced by all the shops together in August?
a) 190%  
b) 80%  
c) 70%  
d) 108%  
e) 132%  

Directions (11 - 20): What value should come in the place of questions mark in the given questions?

11) \(2^3 \times 3^2 \div (90 \div ?) = \sqrt{64}\)
a) 15  
b) 12  
c) 10  
d) 20  
e) 24  

12) \((2 \frac{1}{4} \div 4) \times 8 = ? \times 10\)
a) 0.30  
b) 0.45  
c) 0.84  
d) 0.36  

<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
</table>
| 13) \((? - 0.5) ÷ 0.2 = 120 ÷ 2\) | a) 15  
b) 25  
c) 36  
d) 6.25  
e) 12.5 |
| 14) 80% of \((1.5 * 4 ÷ ?) = 24\) | a) 0.4  
b) 0.6  
c) 2  
d) 20  
e) 0.2 |
| 15) \(\sqrt{5929} + \sqrt{8464} = x^2\) | a) 13  
b) 12  
c) 11  
d) 16  
e) 15 |
| 16) \(\frac{5}{8} of \frac{4}{9} of \frac{3}{5} of 222 = x\) | a) 43  
b) 29  
c) 41  
d) 37  
e) 39 |
| 17) \(\sqrt{(x + 4)} = \frac{1}{4} * 8^2\) | a) 288  
b) 324  
c) 252  
d) 216  
e) 312 |
| 18) \((\sqrt{361} ÷ 19) * (\sqrt{729} ÷ 9) =?\) | a) 2  
b) 3  
c) 9  
d) 6  
e) 12 |
| 19) \((\sqrt{2197 ÷ 32 (1/2)}) * \sqrt{625} * (?) = 1000\) | a) 50  
b) 25  
c) 10  
d) 100  
e) None of these |
| 20) \((\sqrt{1296 ÷ 64}) * (\sqrt{3375 ÷ 45}) =? ÷ 48\) | a) 3  
b) 9  
c) 12  
d) 18  
e) 16 |

21) A vessel contains 64 litres of pure milk and 20 litres of water. One-fourth of the mixture is taken out and \(x\) litres of pure milk is added in the vessel. What is the value of \(x\) if milk is 4 times the water in the final mixture?  
<table>
<thead>
<tr>
<th>Options</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a)</td>
<td>16</td>
</tr>
<tr>
<td>b)</td>
<td>12</td>
</tr>
<tr>
<td>c)</td>
<td>24</td>
</tr>
<tr>
<td>d)</td>
<td>21</td>
</tr>
<tr>
<td>e)</td>
<td>32</td>
</tr>
</tbody>
</table>
22) A man sells a tea cup at a profit of 12%. If he bought it 20% less and sold it for Rs. 6 more, he would have gained 50%. Find the cost price of the tea cup.
   a) Rs.100  
   b) Rs.50  
   c) Rs.75  
   d) Rs.125  
   e) Rs.150

Directions (23 - 26): Following question contains two equations as I and II. You have to solve both equations and determine the relationship between them and give answer as,
   a) If x > y  
   b) If x ≥ y  
   c) If x = y or relationship can’t be determined.  
   d) If x < y  
   e) If x ≤ y

23)  I. \(x^2 - 17x + 72 = 0\)  
    II. \(y^2 - 17y + 70 = 0\)

24)  I. \(x^2 - x - 42 = 0\)  
    II. \(y^2 + y - 30 = 0\)

25)  I. \(x^2 - 9x + 20 = 0\)  
    II. \(y^2 - 15y + 54 = 0\)

26)  I. \(2x^2 - 7x + 3 = 0\)  
    II. \(y^2 - 7y + 12 = 0\)

27) A train crosses a 450 m platform in 80 seconds and crosses a man in the platform in 20 seconds. Find the length of the train.
   a) 200 m  
   b) 300 m  
   c) 450 m  
   d) 150 m  
   e) None of these

28) The difference between simple interest and compound interest accrued on an amount of Rs. 1800 in 2 years was Rs. 30.42. What is the rate of interest per annum?
   a) 11%  
   b) 13%  
   c) 12%  
   d) 14%  
   e) None of these

29) In what ratio must a shopkeeper have to mix the two varieties of rice costing Rs. 25 and 35 per kg respectively so as to get a mixture worth Rs. 32 per kg?
   a) 4: 7  
   b) 5: 7  
   c) 3: 7  
   d) 7: 5  
   e) None of these

30) Average number of chocolates distributed in a class of 40 students is 4. How many students added newly if the each of them gets 2 chocolates?
   a) 20
Directions (31 - 35): Study the following information carefully and answer the given questions.
The bar graph shows the distance (in km) covered by three buses (A, B and C) in two different days (Monday and Tuesday).

31) What is the ratio of the total distance covered by bus B and C in Monday to that of the total distance covered by bus A and B in Tuesday?
   a) 5: 6  
   b) 3: 2  
   c) 2: 5  
   d) 4: 5  
   e) 1: 4

32) What is the difference between the total distance covered by bus C in both the days together to that of the total distance covered by bus A in both the days together?
   a) 36  
   b) 24  
   c) 40  
   d) 12  
   e) 28

33) Distance covered by bus C in Monday is what percentage of the distance covered by bus B in Tuesday?
   a) 30%  
   b) 45%  
   c) 60%  
   d) 75%  
   e) None of these

34) Find the total distance covered by all the bus together in Monday.
   a) 112  
   b) 110  
   c) 120  
   d) 84  
   e) 56

35) Distance covered by A on Monday is what percentage more/less than the distance covered by same bus on Tuesday?
   a) 112  
   b) 110  
   c) 120  
   d) 84  
   e) 56
a) 60%
b) 40%
c) 80%
d) 50%
e) 75%

36) A is 6 years younger than B. The ratio between the present ages of B and C is 12:5. If the present age of A is twice the present of C then find the present age of B.
   a) 24 yrs
   b) 30 yrs
   c) 20 yrs
   d) 36 yrs
   e) 10 yrs

37) A boat travels upstream a distance of 36 km in 2 hrs and downstream a distance of 66 km in 3 hrs. Find the speed of boat in still water.
   a) 18 km/hr
   b) 20 km/hr
   c) 24 km/hr
   d) 36 km/hr
   e) None of these

38) Circle A has perimeter 110 cm and circle B has perimeter 132 cm find the difference of their radius.
   a) 3.5 cm
   b) 4.5 cm
   c) 2.5 cm
   d) 1.5 cm
   e) 5.5 cm

39) Two pipes can empty a tank in 36 min and 60 min. If both the pipes are opened then in how much time can they fill 1/6 of the tank?
   a) 12/5 minutes
   b) 17/3 minutes
   c) 18/5 minutes
   d) 10/3 minutes
   e) 15/4 minutes

40) Two trains Start from the same point and at the same time. Both go in opposite direction that is one goes in north direction and the other goes in south direction. Their speeds are 18 m/s and 12 m/s. In how much time the distance between them will become 367.2 km.
   a) 3.4 hours
   b) 4.2 hours
   c) 1.7 hours
   d) 5.1 hours
   e) 2.8 hours
1) Answer: C

\[
\begin{align*}
1 \times 1 + 1 &= 2 \\
2 \times 2 + 1 &= 5 \\
5 \times 3 + 1 &= 16 \\
16 \times 4 + 1 &= 65 \\
65 \times 5 + 1 &= 326 \text{ (not 328)} \\
326 \times 6 + 1 &= 1957
\end{align*}
\]

2) Answer: D

\[
\begin{align*}
4 + 7 &= 11 \\
11 + 14 &= 25 \\
25 + 21 &= 46 \\
46 + 28 &= 74 \\
74 + 35 &= 109 \text{ (not 129)} \\
109 + 42 &= 151
\end{align*}
\]

3) Answer: B

\[
\begin{align*}
5 + 1 &= 6 \\
16 + 1 &= 17 \\
65 + 1 &= 66 \\
326 + 1 &= 327 \\
1957 + 1 &= 1958
\end{align*}
\]

4) Answer: A

\[
\begin{align*}
3 + 1^2 &= 4 \text{ (not 5)} \\
4 + 2^2 &= 8 \\
8 + 3^2 &= 17 \\
17 + 4^2 &= 33 \\
33 + 5^2 &= 58 \\
58 + 6^2 &= 94
\end{align*}
\]

5) Answer: D

A to B’s salary ratio = 1/3

A and B spends \((x \times 15/100)\) and \((3x \times 15/100)\) for rent

\[
\begin{align*}
\text{Remaining amount} &= x \times 85/100 + 3x \times 85/100 \\
85/100 &= 40800 \\
17x + 51x &= 40800 \times 20 \\
68x &= 40800 \times 20 \\
= x &= 12000 \\
\text{A’s rent amount} &= 12000 \times 15/100 = \text{Rs.1800}
\end{align*}
\]

6) Answer: D

Required difference = \((525 + 252 + 363 + 486) - (424 + 516 + 328 + 224)\)

= 1626 - 1492 = 134

7) Answer: A

Required difference = \((454 - 48) - (252 - 64)\)

= 406 - 188

= 218

8) Answer: E

Required average = \((424 + 516 + 328 + 224)/4\)

= 1492/4 = 373

9) Answer: A

Required ratio = \((328 + 712) : (486 + 618)\)

= 1040 : 1104

= 65 : 69

10) Answer: D

Required percentage

= \((328 + 712 + 363 + 439)/(224 + 384 + 486 + 618)) \times 100\)

= 1842/1712 \times 100

= 108%
11) Answer: C
\[2^3 \times 3^2 \div (90 \div ?) = \sqrt{64}\]
\[8 \times 9 \div (90/?) = 8\]
\[9 \times ? = 90\]
\[\Rightarrow ? = 10\]

12) Answer: B
\[(2 \frac{1}{4} \div 4) \times 8 = ? \times 10\]
\[9/4 \times 8 = ? \times 10\]
\[? = 0.45\]

13) Answer: E
\[?( - 0.5) \div 0.2 = 120 \div 2\]
\[? - 0.5 = 60 \times 0.2\]
\[? = 12 + 0.5 = 12.5\]

14) Answer: E
\[80\% \text{ of } (1.5 \times 4 \div ?) = 24\]
\[4/5 \times (6 /?) = 24\]
\[? = 0.2\]

15) Answer: A
\[\sqrt{5929} + \sqrt{8464} = x^2\]
\[77 + 92 = x^2\]
\[169 = x^2\]
\[\Rightarrow x = 13\]

16) Answer: D
\[5/8 \text{ of } 4/9 \text{ of } 3/5 \text{ of } 222 = x\]
\[= x = 5/8 \times 4/9 \times 3/5 \times 222\]
\[= x = 37\]

17) Answer: C
\[\sqrt{x + 4} = \frac{1}{4} \times 8^2\]
\[(x + 4) = 16^2\]
\[= x + 4 = 256\]
\[= x = 252\]

18) Answer: B
\[(\sqrt{361} \div 19) \times (\sqrt{729} \div 9) = ?\]
\[(19/19) \times (27/9) = ?\]
\[1 \times 3 = ?\]
\[3 = ?\]

19) Answer: D
\[(\sqrt[3]{2197} \div 32 (1/2)) \times \sqrt{625} \star (?) = 1000\]
\[13 \times 2/65 \times 25 \star (?) = 1000\]
\[10 \star (?) = 1000\]
\[? = 100\]

20) Answer: B
\[(\sqrt{1296} \div 64) \times (\sqrt[3]{3375} \div 45) = ? \div 48\]
\[(36/64) \times (15/45) = ? \div 48\]
\[3/16 \times 48 = ?\]
\[9 = ?\]

21) Answer: B
Ratio of milk and water in the mixture = 64: 20 = 16: 5
One – fourth of the mixture = 84 * ¼ = 21 litres taken out
Milk in the final mixture = (64 - 16) + x = (48 + x) litres
Water in the final mixture = (20 - 5) = 15 litres
According to the question,
\[(48 + x)/15 = 4/1\]
\[48 + x = 60\]
\[= x = 12 \text{ litres}\]

22) Answer: C
Let the cost price be x
Then,
25) Answer: D
\[ x^2 - 9x + 20 = 0 \]
\[ x^2 - 5x - 4x + 20 = 0 \]
\[ (x - 5) (x - 4) = 0 \]
\[ \Rightarrow x = 4, 5 \]
\[ y^2 - 15y + 54 = 0 \]
\[ y^2 - 6y - 9y + 54 = 0 \]
\[ (y - 6) (y - 9) = 0 \]
\[ \Rightarrow y = 6, 9 \]

Hence \( x < y \)

26) Answer: E
\[ 2x^2 - 7x + 3 = 0 \]
\[ 2x^2 - 6x - x + 3 = 0 \]
\[ 2x (x - 3) - 1 (x - 3) = 0 \]
\[ \Rightarrow x = 3, 1/2 \]
\[ y^2 - 7y + 12 = 0 \]
\[ y^2 - 4y - 3y + 12 = 0 \]
\[ (y - 4) (y - 3) = 0 \]
\[ \Rightarrow y = 3, 4 \]

Hence, \( x \leq y \)

27) Answer: D
Let the speed and length of the train be \( x \) and \( y \)
Then
\[ y + 450 = x \times 5/18 \times 80 \] \( ----(1) \)
\[ y = x \times 5/18 \times 20 \] \( ----(2) \)
sub (2) in (1)
\[ (x \times 5/18 \times 20) + 450 = x \times 5/18 \times 80 \]
\[ x \times 5/18 \times 80 - (x \times 5/18 \times 20) = 450 \]
\[ x \times 5/18 \times 60 = 450 \]
\[ x = 27 \text{ kmph} \]
28) **Answer: B**

Difference = P * r²/100²

30.42 = 1800 * r²/100²

3042/18 = r²

r = 13%

29) **Answer: C**

Required ratio = 25:35

30) **Answer: D**

According to the question,

(40+x) * 2 = 40 *4

(40+x) = 40 * 2

40 +x = 80

=> x = 40 students added newly

31) **Answer: D**

Required ratio = (20 + 36): (30 + 40)

= 56: 70 = 4: 5

32) **Answer: C**

Required difference = 84 - 44 = 40 km

33) **Answer: E**

Required percentage = 20/40 * 100 = 50%

34) **Answer: B**

Required total = 54 + 36 + 20 = 110 km

35) **Answer: C**

Required percentage = (54 - 30)/30 * 100

= 24/30 * 100 = 80%

36) **Answer: D**

A = 2C

A: C = 2: 1

2 : 1 : 1

5 : 5 : 12

10 : 5 : 12

12x - 10x = 6

=> 2x = 6 = > x = 3 years

Present age of B = 12 * 3 = 36 years

37) **Answer: B**

Upstream speed = 36/2 = 18 km/hr

Downstream speed = 66/3 = 22 km/hr

Speed of the boat in still water

= ½ * (downstream speed + upstream speed)

= ½ (18 + 22)

= 20 km/hr

38) **Answer: A**

Perimeter of circle A = 110

2πra = 110

ra = 110 * 7/22 * ½ = 17.5 cm

Perimeter of circle B = 132

2πrb = 132

rb = 132 * 7/22 * ½ = 21

Required difference = 21 - 17.5 = 3.5 cm

39) **Answer: E**

LCM of 36 and 60 = 360
Total capacity = 360 litres
Pipe 1 = 360/36 = 10 litres per minute
Pipe 2 = 360/60 = 6 litres per minute
One - sixth of the tank = 360/6 = 60 litres
Required time = 60/16 = 15/4 minutes

40) Answer: A
Relative speed = (18 + 12) * 18/5 = 30 * 18/5 = 108 km/hr
Required time = 367.2/108 = 3.4 hours