LCM and HCF

Solution

1. **Answer: (C)**
So, 11/13 is the largest fraction
$\frac{5}{7} = 0.714, \frac{7}{9} = 0.777, \frac{11}{13} = 0.846$
Also we can solve it by equating the bases of these fractions.
LCM of 7, 9 & 13 = 819
$\frac{5}{7} = \frac{585}{819}, \frac{7}{9} = \frac{637}{819}, \frac{11}{13} = \frac{693}{819}$
Here also we can see 693/819 i.e. 11/13 is the largest fraction

2. **Answer: (A)**
HCF of 24, 40 & 120
$24 = 2 \times 2 \times 2 \times 3 = 2^3 \times 3^1$
$40 = 2 \times 2 \times 2 \times 5 = 2^3 \times 5^1$
$120 = 2 \times 2 \times 2 \times 3 \times 5 = 2^3 \times 3^1 \times 5^1$
So, HCF = $2^3 = 8$ (since that is common in all the numbers)

3. **Answer: (D)**
For finding the LCM of 2 fractions.
LCM =LCM of Numerators/HCF of Denominators
LCM = LCM of 18&20/HCF of 5&9=180/1=180

4. **Answer: (B)**
3/7=0.4284,4/11=0.3636,5/8=0.625
So smallest is 4/11
It can also be solved by making the denominators equal
LCM of 7, 11 & 8 = 616
$\frac{264}{616} = \frac{3}{7}, \frac{224}{616} = \frac{4}{11}. \frac{385}{616} = \frac{5}{8}$
When, based are equal, we can clearly see.
224/616 is the smallest i.e. 4/11

5. **Answer: (B)**
For fraction,
H.C.F = H.C.F of numerator/L.C.M of denominator
Numerators are 3 and 12
H.C.F of 3 and 12 = 3
Denominators are 4 and 13
L.C.M of 4 and 13 = 52
H.C.F = 3/52

6. **Answer: (A)**
3/11 = 0.27
4/7 = 0.57
5/8 = 0.625
We can observe that 3/11 has the minimum value.
∴ 3/11 is the smallest fraction among all

7. **Answer: (A)**
6/7 = 0.85
4/5 = 0.8
3/4 = 0.75
Here, 0.85 > 0.8 > 0.75
Hence, 6/7 > 4/5 > 3/4 is true.

8. **Answer: (B)**
Listing the prime factor of each number
$24 = 2 \times 2 \times 2 \times 3$
$48 = 2 \times 2 \times 2 \times 2 \times 3$
$72 = 2 \times 2 \times 2 \times 3 \times 3$
Multiply each factor the greatest number of times it occurs in any of the numbers.
48 has 4 2s, 72 has 2 3s. This gives us 144, the smallest number that can be divided evenly by 24, 48 and 72

9. **Answer: (A)**

2	64,56
2	32,28
2	16,14
	8,7

Required LCM = $2 \times 2 \times 2 \times 8 \times 7 = 448$

10. **Answer: (B)**
HCF of 6345 and 2160
Factors of 6345 = $5 \times 3 \times 3 \times 3 \times 47$
Factors of 2160 = $5 \times 3 \times 3 \times 3 \times 2 \times 2 \times 2 \times 2$
So , common factors = $5 \times 3 \times 3 \times 3$
$= 135$

11. **Answer: (B)**

5	120, 450
2	24, 90
3	12, 45
3	4, 15
4	4, 5
5	1, 5
	1, 1

LCM = 5 × 2 × 3 × 3 × 4 × 5 = 1800

12. **Answer: (C)**

$A = 2^3 \times 3^4$

$B = 2^5 \times 3^2$

HCF of (A, B) = $2^3 \times 3^2$

13. **Answer: (C)**

$A = \frac{HCF\ (3,9)}{LCM\ (4,16)}$

$= \frac{3}{16}$

$B = \frac{HCF\ (16,4)}{LCM\ (5,25)}$

$= \frac{16}{5}$

So, $A + B = \frac{3}{16} + \frac{16}{5}$

$= \frac{15+256}{80}$

$= \frac{271}{80}$

14. **Answer: (D)**

HCF of $\left(\frac{p}{q}\right) = \frac{HFC\ of\ Numerator}{LCM\ of\ Denominator}$

$HFC = \frac{HCF\ (7,21,49)}{LCM(16,32,8)}$

$HCF = \frac{7}{32}$

15. **Answer: (A)**

Even number between 5 and 13 -: 6, 8, 10, 12

LCM (6, 8, 10, 12) = 120

16. **Answer: (B)**

LCM (56, 57, 58) = K

LCM (56, 57, 58, 59)

$= \underset{K}{\lfloor 56, 57, 58 \rfloor} \quad \underset{59}{\lfloor 59 \rfloor}$

LCM (56, 57, 58, 59) = 59K

17. **Answer: (C)**

LCM (23, 24) = 552

A = 552

HCF (23, 24) = 1

B = 1

A.T.Q

= A + B

= 552 + 1

= 553

18. **Answer: (C)**

H.C.F (42, 168, 210)

42 = 21 × 2

168 = 21 × 2 × 2 × 2

210 = 21 × 2 × 5

HCF (42, 168, 210) = 42

19. **Answer: (D)**

Let the number are x and y

37xy = 6845

xy = 185

xy = 37 × 5

1st Number = 185

2nd Number = 37

20. **Answer: (A)**

A.T.Q

(72 × 84) @ 144

HCF of 72 and 84 = 12

12 @ 144

LCM of 12 and 144 = 144

12 @ 144 = 144