Common factors and highest common factor (hcf)

1. Find the common factors and highest common factor (HCF) of the numbers shown

a. 6 and 9   Factors of 6:   …. , …. , …. , ….

Factors of 9:   …. , …. , ….

Common factors: …. , ….   HCF =   ….

b. 8 and 20   Factors of 8:   …. , …. , …. , ….

Factors of 20:   …. , …. , …. , …. , …. ,….

Common factors: …. , …. , ….   HCF =   ….

c. 25 and 40   Factors of 25:   …. , …. , ….

Factors of 40:   …. , …. , …. , …. , …. , …. , …. , ….

Common factors: …. , ….   HCF =   ….

d. 16 and 24   Factors of 16:   …. , …. , …. , …. , ….

Factors of 24:   …. , …. , …. , …. , …. , …. , …. , ….

Common factors: …………………………………………   HCF =   ….

e. 12 and 30   Factors of 12:   …. , …. , …. , …. , …. , ….

Factors of 30:   …. , …. , …. , …. , …. , …. , …. , ….

Common factors: …………………………………………   HCF =   ….

f. 36 and 64   Factors of 36:   …. , …. , …. , …. , …. , …. , …. , …. , ….

Factors of 64:   …. , …. , …. , …. , …. , …. , ….

Common factors: …………………………………………   HCF =   ….

g. 40 and 50   Factors of 40:   …. , …. , …. , …. , …. , …. , …. , ….

Factors of 50:   …. , …. , …. , …. , …. , ….

Common factors: …………………………………………   HCF =   ….

h. 18 and 54   Factors of 18:   …. , …. , …. , …. , …. , ….

Factors of 54:   …. , …. , …. , …. , …. , …. , …. , ….

Common factors: …………………………………………   HCF =   ….

i. Find the HCF of 24 and 90   j. Find the HCF of 60 and 84

2. Why is it not sensible to find the lowest common factor?

……

Multiples and lowest common multiple (lcm)

1. Complete the sentences:

a. The multiples of a number are found by …………… it by a …………… .

b. The multiples of 4 are: 4, …. , …. , …. , …. , …. , …. , …. , …

c. The smallest multiple of a number is always ………………………………………………………… .

d. The 2nd multiple of 6 = …. x …. = ….   e. The 9th multiple of 4 = …. x …. = ….

2. Find the lowest common multiple (LCM) of the numbers shown.

a. 2 and 3   Mutiples of 2: …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …

Mutiples of 3: …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …

Common multiples of 2 and 3: …. , …. , …. , …. , …. , …   LCM = ….

b. 4 and 5   Mutiples of 4: …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …

Mutiples of 5: …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …

Common multiples of 4 and 5: …. , …. , …. , …. , …. , …   LCM = ….

c. 6 and 4   Mutiples of 6: …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …

Mutiples of 4: …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …

Common multiples of 4 and 6: …. , …. , …. , …. , …. , …   LCM = ….

d. 6 and 9   Mutiples of 6: …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …

Mutiples of 9: …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …

Common multiples of 6 and 9: …. , …. , …. , …. , …. , …   LCM = ….

e. 7 and 5   Mutiples of 7: …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …

Mutiples of 5: …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …

Common multiples of 7 and 5: …. , …. , …. , …. , …. , …   LCM = ….

f. 3 and 8   Mutiples of 3: …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …

Mutiples of 8: …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …. , …

Common multiples of 3 and 8: …. , …. , …. , …. , …. , …   LCM = ….

g. Find the common multiples and LCM of 12 and 20.

3. Why is it not sensible to find the highest common multiple?

1. Find the common factors and highest common factor (HCF) of the numbers shown

a. 6 and 9   Factors of 6: 1 , 2 , 3 , 6

Factors of 9: 1 , 3 , 9

Common factors: 1 , 3   HCF = 3

b. 8 and 20   Factors of 8: 1 , 2 , 4 , 8

Factors of 20: 1 , 2 , 4 , 5 , 10 , 20

Common factors: 1 , 2 , 4   HCF = 4

c. 25 and 40   Factors of 25: 1 , 5 , 25

Factors of 40: 1 , 2 , 4 , 5 , 8 , 10 , 20 , 40

Common factors: 1 , 5   HCF = 5

d. 16 and 24   Factors of 16: 1 , 2 , 4 , 8 , 16

Factors of 24: 1 , 2 , 3 , 4 , 6 , 8 , 12 , 24

Common factors: 1 , 2 , 4 , 8   HCF = 8

e. 12 and 30   Factors of 12: 1 , 2 , 3 , 4 , 6 , 12

Factors of 30: 1 , 2 , 3 , 5 , 6 , 10 , 15 , 30

Common factors: 1 , 2 , 3 , 6   HCF = 6

f. 36 and 64   Factors of 36: 1 , 2 , 3 , 4 , 6 , 9 , 12 , 18 , 36

Factors of 64: 1 , 2 , 4 , 8 , 16 , 32 , 64

Common factors: 1 , 2 , 4   HCF = 4

g. 40 and 50   Factors of 40: 1 , 2 , 4 , 5 , 8 , 10 , 20 , 40

Factors of 50: 1 , 2 , 5 , 10 , 25 , 50

Common factors: 1 , 2 , 5 , 10   HCF = 10

h. 18 and 54   Factors of 18: 1 , 2 , 3 , 6 , 9 , 18

Factors of 54: 1 , 2 , 3 , 6 , 9 , 18 , 27 , 54

Common factors: 1 , 2 , 3 , 6 , 9 , 18   HCF = 18

i. HCF of 24 and 90 = 6   j. HCF of 60 and 84 = 12

2. Why is it not sensible to find the lowest common factor?
It will always be 1, because 1 is a factor of every number.

1. Complete the sentences:

a. The multiples of a number are found by multiplying it by a number.

b. The multiples of 4 are: 4 , 8 , 12 , 16 , 20 , 24 , 28 , 32 , …

c. The smallest multiple of a number is always the number itself.

d. The 2nd multiple of 6 = 2 x 6 = 12   e. The 9th multiple of 4 = 9 x 4 = 36

2. Find the lowest common multiple (LCM) of the numbers shown.

a. 2 and 3   Mutiples of 2: 2 , 4 , 6 , 8 , 10 , 12 , 14 , 16 , 18 , 20 , 22 , 24 , …

Mutiples of 3: 3 , 6 , 9 , 12 , 15 , 18 , 21 , 24 , 27 , 30 , 33 , 36 , …

Common multiples of 2 and 3: 6 , 12 , 18 , 24 , 30 , …   LCM = 6

b. 4 and 5   Mutiples of 4: 4 , 8 , 12 , 16 , 20 , 24 , 28 , 32 , 36 , 40 , 44 , 48 , …

Mutiples of 5: 5 , 10 , 15 , 20 , 25 , 30 , 35 , 40 , 45 , 50 , 55 , 60 , …

Common multiples of 4 and 5: 20 , 40 , 60 , 80 , 100 , …   LCM = 20

c. 6 and 4   Mutiples of 6: 6 , 12 , 18 , 24 , 30 , 36 , 42 , 48 , 54 , 60 , 66 , 72 , …

Mutiples of 4: 4 , 8 , 12 , 16 , 20 , 24 , 28 , 32 , 36 , 40 , 44 , 48 , …

Common multiples of 6 and 4: 12 , 24 , 36 , 48 , 60 , …   LCM = 12

d. 6 and 9   Mutiples of 6: 6 , 12 , 18 , 24 , 30 , 36 , 42 , 48 , 54 , 60 , 66 , 72 , …

Mutiples of 9: 9 , 18 , 27 , 36 , 45 , 54 , 63 , 72 , 81 , 90 , 99 , 108 , …

Common multiples of 6 and 9: 18 , 36 , 54 , 72 , 90 , …   LCM = 18

e. 7 and 5   Mutiples of 7: 7 , 14 , 21 , 28 , 35 , 42 , 49 , 56 , 63 , 70 , 77 , 84 , …

Mutiples of 5: 5 , 10 , 15 , 20 , 25 , 30 , 35 , 40 , 45 , 50 , 55 , 60 , …

Common multiples of 7 and 5: 35 , 70 , 105 , 140 , 175 , …   LCM = 35

f. 3 and 8   Mutiples of 3: 3 , 6 , 9 , 12 , 15 , 18 , 21 , 24 , 27 , 30 , 33 , 36 , …

Mutiples of 8: 8 , 16 , 24 , 32 , 40 , 48 , 56 , 64 , 72 , 80 , 88 , 96 , …

Common multiples of 3 and 8: 24 , 48 , 72 , 96 , 120 , …   LCM = 24

g. Find the common multiples and LCM of 12 and 20.

Mutiples of 12: 12 , 24 , 36 , 48 , 60 , 72 , 84 , 96 , 108 , 120 , …

Mutiples of 20: 20 , 40 , 60 , 80 , 100 , 120 , 180 , 200 , …

Common multiples of 12 and 20: 60 , 120 , 180 , 240 , …   LCM = 60

3. Why is it not sensible to find the highest common multiple?

Multiples keep getting larger so we can always find a larger common multiple.