RD SHARMA

Solutions

Class 10 Maths

Chapter 1

Ex 1.2

Q.1: Define HCF of two positive integers and find the HCF of the following pairs of number:

(i) 32 and 54

(ii) 18 and 24

(iii) 70 and 30

(iv) 56 and 88

(v) 475 and 495

(vi) 75 and 243

(vii) 240 and 6552

(viii) 155 and 1385

(ix) 100 and 190

(x) 105 and 120

Sol:

(i) We need to find H.C.F. of 32 and 54.

By applying division lemma 54 = 32 x 1 + 22

Since remainder ≠ 0, apply division lemma on 32 and remainder 22

32 = 22 x 1 + 10

Since remainder ≠ 0, apply division lemma on 22 and remainder 10

22 = 10 x 2 + 2

Since remainder ≠ 0, apply division lemma on 10 and 2

10 = 2 x 5 + 0

Therefore, H.C.F. of 32 and 54 is

(ii) We need to find H.C.F. of 18 and 24.

By applying division lemma

24 = 18 x 1 + 6.

Since remainder ≠ 0, apply division lemma on divisor 18 and remainder 6

18 = 6 x 3 + 0.

Therefore, H.C.F. of 18 and 24 is 6

(iii) We need to find H.C.F. of 70 and 30.

By applying Euclid's Division lemma

70 = 30 x 2 + 10.

Since remainder ≠ 0, apply division lemma on divisor 30 and remainder 10

30 = 10 x 3 + 0.

Therefore, H.C.F. of 70 and 30 = 10

(iv) We need to find H.C.F. of 56 and 88.

By applying Euclid's Division lemma

88 = 56 x 1 + 32.

Since remainder ≠ 0, apply division lemma on 56 and remainder 32

56 = 32 x 1 + 24.

Since remainder ≠ 0, apply division lemma on 32 and remainder 24

32 = 24 x 1+ 8.

Since remainder ≠ 0, apply division lemma on 24 and remainder 8

24 = 8 x 3 + 0. Therefore, H.C.F. of 56 and 88 = 8

(v) We need to find H.C.F. of 475 and 495.

By applying Euclid's Division lemma,

495 = 475 x 1 + 20.

Since remainder ≠ 0, apply division lemma on 475 and remainder 20

475 = 20 x 23 + 15.

Since remainder ≠ 0, apply division lemma on 20 and remainder 15

20 = 15 x 1 + 5.

Since remainder ≠ 0, apply division lemma on 15 and remainder 5

15 = 5 x 3+ 0.

Therefore, H.C.F. of 475 and 495 = 5

(vi) We need to find H.C.F. of 75 and 243.

By applying Euclid's Division lemma

243 = 75 x 3 + 18.

Since remainder ≠ 0, apply division lemma on 75 and remainder 18

75 = 18 x 4 + 3.

Since remainder ≠ 0, apply division lemma on divisor 18 and remainder 3

18 = 3 x 6+ 0.

Therefore, H.C.F. of 75 and 243 = 3

(vii) We need to find H.C.F. of 240 and 6552.

By applying Euclid's Division lemma

6552 = 240 x 27 + 72.

Since remainder ≠ 0, apply division lemma on divisor 240 and remainder 72

240 = 72 x 3+ 24.

Since remainder ≠ 0, apply division lemma on divisor 72 and remainder 24

72 = 24 x 3 + 0.

Therefore, H.C.F. of 240 and 6552 = 24

(viii) We need to find H.C.F. of 155 and 1385.

By applying Euclid's Division lemma

1385 = 155 x 8 + 145.

Since remainder ≠ 0, apply division lemma on divisor 155 and remainder 145.

155 = 145 x 1 + 10.

Since remainder ≠ 0 apply division lemma on divisor 145 and remainder 10

145 = 10 x 14 + 5.

Since remainder ≠ 0, apply division lemma on divisor 10 and remainder 5

10 = 5 x 2 + 0.

Therefore, H.C.F. of 155 and 1385 = 5

(ix) We need to find H.C.F. of 100 and 190.

By applying Euclid's division lemma

190 = 100 x 1 + 90.

Since remainder ≠ 0, apply division lemma on divisor 100 and remainder 90

100 = 90 x 1 + 10.

Since remainder ≠ 0, apply division lemma on divisor 90 and remainder 10

90 = 10 x 9 + 0.

Therefore, H.C.F. of 100 and 190 = 10

(x) We need to find H.C.F. of 105 and 120.

By applying Euclid's division lemma

120 = 105 x 1 + 15.

Since remainder ≠ 0, apply division lemma on divisor 105 and remainder 15

105 = 15 x 7 + 0.

Therefore, H.C.F. of 105 and 120 = 15.

Q.2: Use Euclid's division algorithm to find the HCF of

(i) 135 and 225

(ii) 196 and 38220

(iii) 867 and 255

(iv) 184, 230 and 276 [not available]

(v) 136, 170 and 255 [not available]

Sol.

(i) Given integers are 225 and 135.

Clearly 225 > 135.

So we will apply Euclid's division lemma to 225 and 135, we get,

867 = (225) (3) + 192

Since the remainder ≠ 0. So we apply the division lemma to the divisor 135 and remainder 90. We get, 135 = (90) (1) + 45

Now we apply the division lemma to the new divisor 90 and remainder 45. We get,

90 = (45) (2) + 0

The remainder at this stage is 0. So the divisor at this stage is the H.C.F.

So, the H.C.F of 225 and 135 is 45

(ii) Given integers are 38220 and 196. Clearly 38220 > 196.

So we will apply Euclid's division lemma to 38220 and 196, we get,

38220 = (196) (195) + 0

The remainder at this stage is 0. So the divisor at this stage is the H.C.F.

So the H.C.F of 38220 and 196 is 196

(iii) Given integers are 867 and 255. Clearly 867 > 225.

So we will apply Euclid's division lemma to 867 and 225, we get,

867 = (225) (3) + 192

Since the remainder 192 ≠ 0. So we apply the division lemma to the divisor 225 and remainder 192. We get,

225 = (192) (1) + 33

Now we apply the division lemma to the new divisor 192 and remainder 33. We get,

192 = (33) (5) + 27

Now we apply the division lemma to the new divisor 33 and remainder 27. We get,

33 = (27) (1) + 6

Now we apply the division lemma to the new divisor 27 and remainder 6. We get,

27 = (6) (4) + 3

Now we apply the division lemma to the new divisor 27 and remainder 6. We get,

6 = (3) (2) + 0

The remainder at this stage is 0. So the divisor at this stage is the H.C.F.

So the H.C.F of 867 and 255 is 3.

Q.3: Find the HCF of the following pair of integers and express it as a linear combination of them,

(i) 963 and 657

(ii) 592 and 252

(iii) 506 and 1155

(iv) 1288 and 575

Sol:

(i) We need to find the H.C.F. of 963 and 657 and express it as a linear combination of 963 and 657. By applying Euclid's division lemma, 963 = 657 x 1 + 306.

Since remainder ≠ 0, apply division lemma on divisor 657 and remainder 306

657 = 306 x 2 + 45.

Since remainder ≠ 0, apply division lemma on divisor 306 and remainder 45

306 = 45 x 6 + 36.

Since remainder ≠ 0, apply division lemma on divisor 45 and remainder 36

45 = 36 x 1 + 9.

Since remainder ≠ 0, apply division lemma on divisor 36 and remainder 9

36 = 9 x 4 + 0.

Therefore, H.C.F. = 9.

Now, 9 = 45 – 36 x 1

= 45 – [306 – 45 x 6] x 1 = 45 – 306 x 1 + 45 x 6

= 45 x 7 – 306 x 1 = [657 -306 x 2] x 7 – 306 x 1

= 657 x 7 – 306 x 14 – 306 x 1

= 657 x 7 – 306 x 15

= 657 x 7 – [963 – 657 x 1] x 15

= 657 x 7 – 963 x 15 + 657 x 15

= 657 x 22 – 963 x 15.

Hence, obtained.

(ii) We need to find the H.C.F. of 592 and 252 and express it as a linear combination of 592 and 252.

By applying Euclid’s division lemma

592 = 252 x 2 + 88

Since remainder ≠ 0, apply division lemma on divisor 252 and remainder 88

252 = 88 x 2 + 76

Since remainder ≠ 0, apply division lemma on divisor 88 and remainder 76

88 = 76 x 1 + 12

Since remainder ≠ 0, apply division lemma on divisor 76 and remainder 12

76 = 12 x 6 + 4

Since remainder ≠ 0, apply division lemma on divisor 12 and remainder 4

12 = 4 x 3 + 0.

Therefore, H.C.F. = 4.

Now, 4 = 76 – 12 x 6

= 76 – 88 – 76 x 1 x 6

= 76 – 88 x 6 + 76 x 6

= 76 x 7 – 88 x 6

= 252 – 88 x 2 x 7 – 88 x 6

= 252 x 7- 88 x 14- 88 x 6

= 252 x 7- 88 x 20

= 252 x 7 – 592 – 252 x 2 x 20

= 252 x 7 – 592 x 20 + 252 x 40

= 252 x 47 – 592 x 20

= 252 x 47 + 592 x (-20)

Hence obtained.

(iii) We need to find the H.C.F. of 506 and 1155 and express it as a linear combination of 506 and 1155. By applying Euclid’s division lemma

1155 = 506 x 2 + 143.

Since remainder ≠ 0, apply division lemma on divisor 506 and remainder 143

506 = 143 x 3 + 77.

Since remainder ≠ 0, apply division lemma on divisor 143 and remainder 77

143 = 77 x 1 + 66.

Since remainder ≠ 0, apply division lemma on divisor 77 and remainder 66

77 = 66 x 1 + 11.

Since remainder ≠ 0, apply division lemma on divisor 66 and remainder 11

66 = 11 x 6 + 0.

Therefore, H.C.F. = 11.

Now, 11 = 77 – 66 x 1 = 77—[143 – 77 x 1] x 1

= 77 – 143 x 1 + 77 x 1

= 77 x 2 – 143 x 1

= [506 – 143 x 3] x 2 – 143 x 1

= 506 x 2 – 143 x 6 – 143 x 1

= 506 x 2 – 143 x 7 = 506 x 2 – [1155 – 506 x 2] x 7 = 506 x 2 – 1155 x 7+ 506 x 14

= 506 x 16 – 1155 x 7

Hence obtained.

(iv) We need to find the H.C.F. of 1288 and 575 and express it as a linear combination of 1288 and 575. By applying Euclid's division lemma

1288 = 575 x 2+ 138.

Since remainder ≠ 0, apply division lemma on divisor 506 and remainder 143

575 = 138 x 4 + 23.

Since remainder ≠ 0, apply division lemma on divisor 143 and remainder 77

138 = 23 x 6 + 0.

Therefore, H.C.F. = 23.

Now, 23 = 575 – 138 x 4 = 575—[1288 – 575 x 2] x 4

= 575 – 1288 x 4 + 575 x 8

Hence, obtained.

Q.4: Find the largest number which divides 615 and 963 leaving remainder 6 in each case.

Sol:

We need to find the largest number which divides 615 and 963 leaving remainder 6 in each case.

The required number when divides 615 and 963, leaves remainder 6, this means 615 — 6 = 609 and 963— 6 = 957 are completely divisible by the number.

Therefore,

The required number = H.C.F. of 609 and 957.

By applying Euclid’s division lemma

957 = 609 x 1+ 348

609 = 348 x 1 + 261

348 = 216 x 1 + 87

261 = 87 x 3 + 0.

Therefore, H.C.F. = 87.

Hence, the required number is 87

Q.5: If the HCF of 408 and 1032 is expressible in the form 1032m – 408 x 5, find m.

Sol:

We need to find m if the H.C.F of 408 and 1032 is expressible in the form 1032 m — 408 x 5

Given integers are 408 and 1032 where 408 < 1032

By applying Euclid’s division lemma, we get 1032 = 408x 2 + 216.

Since the remainder ≠ 0, so apply division lemma on divisor 408 and remainder 216

408 = 216 x 1 + 192.

Since the remainder ≠ 0, so apply division lemma on divisor 216 and remainder 192

216 = 192 x 1 + 24.

Since the remainder ≠ 0, so apply division lemma on divisor 192 and remainder 24

192 = 24 x 8 + 0.

We observe that remainder is 0. So the last divisor is the H.C.F of 408 and 1032.

Therefore,

24 = 1032m — 408 x 5

1032m = 24 + 408 x 5

1032m = 24 + 2040

1032m = 2064

m= 20641032 $m = \frac{2064}{1032}$

m = 2

Therefore, m = 2.

Q.6: If the HCF of 657 and 963 is expressible in the form 657x + 963x – 15, find x.

Sol:

We need to find x if the H.C.F of 657 and 963 is expressible in the form 657x + 963y (-15).

Given integers are 657 and 963.

By applying Euclid’s division lemma, we get,

963 = 657 x 1+ 306.

Since the remainder ≠ 0, so apply division lemma on divisor 657 and remainder 306

657 = 306 x 2 + 45.

Since the remainder ≠ 0, so apply division lemma on divisor 306 and remainder 45

306 = 45 x 6 + 36.

Since the remainder ≠ 0, so apply division lemma on divisor 45 and remainder 36

45 = 36 x 1 + 9.

Since the remainder ≠ 0, so apply division lemma on divisor 36 and remainder 9

36 = 9 x 4 + 0.

Therefore, H.C.F. = 9.

Given H.C.F = 657x + 936 (-15).

Therefore, 9 = 657x —14445

9 + 14445 = 657x

14454 = 657x

x= 14454657 $x = \frac{14454}{657}$

On solving the above, we have,

x = 22.

Hence obtained.

Q.7: An army contingent of 616 members is to march behind an army band of 32 members in a parade. The two groups are to in the same number of columns. What is the maximum number of columns in which they can march?

Sol.

We are given that an army contingent of 616 members is to march behind an army band of 32 members in a parade. The two groups are to march in the same number of columns. We need to fund the maximum number of columns in which they can march.

Members in army = 616

Members in band = 32.

Therefore, Maximum number of columns = H.C.F of 616 and 32.

By applying Euclid’s division lemma

616 = 32 x 19 + 8

32 = 8 x 4 + 0.

Therefore, H.C.F. = 8

Hence, the maximum number of columns in which they can march is 8

Q.8: A merchant has 120 liters of oil of one kind, 180 liters of another and 240 liters of third kind. He wants to sell the oil by filling the three kinds of oil in tins of equal capacity. What should be the greatest capacity of such a tin?

Sol:

The merchant has 3 different oils of 120 liters, 180 liters and 240 liters respectively.

So the greatest capacity of the tin for filling three different types of oil is given by the H.C.F. of 120,180 and 240.

So first we will calculate H.C.F of 120 and 180 by Euclid’s division lemma.

180 = (120) (1) + 60

120 = (60) (2) + 0

The divisor at the last step is 60. So the H.C.F of 120 and 180 is 60.

Now we will fund the H.C.F. of 60 and 240,

240 = (60) (4) + 0

The divisor at the last step is 60. So the H.C.F of 240 and 60 is 60.

Therefore, the tin should be of 160 liters.

Q.9: During a sale, color pencils were being sold in packs of 24 each and crayons in packs of 32 each. If you want full packs of both and the same number of pencils and crayons, how many of each would you need to buy?

Sol:

We are given that during a sale, color pencils were being sold in packs of 24 each and crayons in packs of 32 each. If we want full packs of both and the same number of pencils and crayons, we need to find the number of each we need to buy.

Given that, Number of color pencils in one pack = 24

Number of crayons in pack = 32.

Therefore, the least number of both colors to be purchased

L.C.M of 24 and 32 = 2 x 2 x 2 x 2 x 2 x 3 = 96

Hence, the number of packs of pencils to be bought

9624 =4 $\frac{96}{24} = 4$,

And number of packs of crayon to be bought

9632 =3 $\frac{96}{32} = 3$

Q.10: 144 cartons of coke cans and 90 cartons of Pepsi cans are to be stacked in a canteen. If each stack is of the same height and is to contain cartons of same drink, what would be the greatest number of cartons each stack would have?

Sol:

Given that 144 cartons of coke cans and 90 cartons of Pepsi cans are to be stacked in a canteen. If I each stack is of the same height and contains cartons of the same drink We need to find the greatest number of cartons, each stack would have

Given that,

Number of cartons of coke cans = 144

Number of cartons of Pepsi cans = 90.

Therefore, the greatest number of cartons in one stack = H.C.F. of 144 and 90.

By applying Euclid's division lemma 144 = 90 x 1 + 54

90 = 54 x 1+ 36

54 = 36 x 1 + 18

36 = 18 x 2 + 0

H.C.F. =18.

Hence, the greatest number cartons in one stack 18

Q.11: Find the greatest number which divides 285 and 1249 leaving remainders 9 and 7 respectively.

Sol:

We need to find the greatest number which divides 285 and 1249 leaving remainder 9 and 7 respectively.

The required number when divides 285 and 1249, leaves remainder 9 and 7, this means

285 – 9 = 276 and 1249 -7 = 1242 are completely divisible by the number.

Therefore, the required number = H.C.F. of 276 and 1242.

By applying Euclid's division lemma,

1242 = 276 x 4 + 138

276 = 138 x 2 + 0.

Therefore, H.C.F. = 138

Hence, required number is 138

Q.12: Find the largest number which exactly divides 280 and 1245 leaving remainders 4 and 3, respectively.

Sol:

We need to find the largest number which exactly divides 280 and 1245 leaving remainders 4 and 3, respectively.

The required number when divides 280 and 1245, leaves remainder 4 and 3, this means

280 – 4 = 276 and 1245 – 3 = 1242 are completely divisible by the number.

Therefore, the required number = H.C.F. of 276 and 1242.

By applying Euclid's division lemma 1242 = 276 x 4 + 138

276 = 138 x 2 + 0.

Therefore, H.C.F. = 138.

Hence, the required number is 138

Q.13: What is the largest number which that divides 626, 3127 and 15628 and leaves remainders of 1, 2 and 3 respectively?

Sol:

We need to find the largest number that divides 626, 3127 and 15628 and leaves remainders of 1, 2 and 3 respectively.

The required number when divides 626, 3127 and 15628 leaves remainders 1, 2 and 3 this means

626 – 1 = 625,

3127 – 2 = 3125,

And 15628 – 3 = 15625 are completely divisible by the number.

Therefore, the required number = H.C.F. of 625, 3125 and 15625.

First we consider 625 and 3125.

By applying Euclid's division lemma

3125 = 625 x 5 + 0.

H.C.F. of 625 and 3125 = 625

Now, consider 625 and 15625.

By applying Euclid's division lemma 15625 = 625 x 25 + O.

Therefore, H.C.F. of 625, 3125 and 15625 = 625

Hence, the required number is 625

Q.14: Find the greatest number that will divide 445,572 and 699 leaving remainders 4,5 and 6 respectively.

Sol:

To find the greatest number that divides 445, 572 and 699 and leaves remainders of 4, 5 and 6 respectively. The required number when divides 445, 572 and 699 leaves remainders 4, 5 and 6 this means

445 – 4 = 441, 572 – 5 = 567 and 699 – 6 = 693 are completely divisible by the number.

Therefore, the required number = H.C.F. of 441, 567 and 693.

First consider 441 and 567.

By applying Euclid's division lemma

567 = 441 x 1 + 126

441 = 126 x 3 + 63

126 = 63 x 2 + 0.

Therefore, H.C.F. of 441 and 567 = 63

Now, consider 63 and 693

By applying Euclid's division lemma

693 = 63 x 11 + 0.

Therefore, H.C.F. of 441, 567 and 693 = 63

Hence, the required number is 63

Q.15: Find the greatest number which divides 2011 and 2623 leaving remainders 9 and 5 respectively.

Sol:

To find the greatest number which divides 2011 and 2623 leaving remainder 9 and 5 respectively.

The required number when divides 2011 and 2623 leaves remainders 9 and 5 this means

2011 – 9 = 2002 and 2623 – 5 = 2618 are completely divisible by the number.

Therefore, the required number = H.C.F. of 2002 and 2618

By applying Euclid's division lemma

2618 = 2002 x 1 + 616

2002 = 616 x 3 + 154

616 = 154 x 4+ 0.

H.C.F. of 2002 and 2618 = 154

Hence, the required number is 154

Q.16: Two brands of chocolates are available in packs of 24 and 15 respectively. If I need to buy an equal number of chocolates of both kinds, what is the least number of boxes of each kind I would need to buy?

Sol:

We are given that two brands of chocolates are available in packs of 24 and 15 respectively. If lie needs to buy an equal number of chocolates of both kinds, then find least number of boxes of each kind he would need to buy.

Given that,

Number of chocolates of 1st brand in one pack = 24

Number of chocolates of 2nd brand in one pack = 15.

Therefore, the least number of chocolates he need to purchase is

L.C.M. of 24 and 15 = 2 x 2 x 2 x 3 x 5 = 120

Therefore, the number of packet of 1^{st} brand is

12024 $\frac{120}{24}$ = 5,

And the number of packet of 2^{nd} brand is

12015 =8 $\frac{120}{15} = 8$

Q.17: A mason has to fit a bathroom with square marble tiles of the largest possible size. The size of the bathroom is 10ft by 8ft. what would be the size in inches of the tile required that has to be cut and how many such tiles are required?

Sol:

Given:

Size of bathroom = 10 ft by 8 ft

= (10 x 12) inch by (8 x 12) inch

= 120 inch by 96 inch

The largest size of tile required = HCF of 120 and 96

By applying Euclid's division lemma

120 = 96 x 1 + 24

96 = 24 x 4 + 0

Therefore, HCF = 24

Therefore, Largest size of tile required = 24 inches

no.oftilesrequired=areaofbathroomareaof2tile=120x9624x24=5x4=20tiles

$$\text{no. oftilesrequired} = \frac{\text{areaofbathroom}}{\text{areaof2tile}} = \frac{120\text{x}96}{24\text{x}24} = 5\text{x}4 = 20\text{tiles}$$

Q.18: 15 pastries and 12 biscuit packets have been donated for a school fete. These are to be packed in several smaller identical boxes with the same number of pastries and biscuits packets in each. How many biscuit packets and how many pastries will each box contain?

Sol:

Given:

Number of pastries = 15

Number of biscuit packets = 12

Therefore, the required no of boxes to contain equal number = HCF of 15 and 13

By applying Euclid's division lemma 15 = 12 x 13

12 = 2 x 9 = 0

Therefore, No. of boxes required = 3

Hence each box will contain 153 $=5\frac{15}{3} = 5$ pastries and 23 $\frac{2}{3}$biscuit packs.

Q.19: 105 goats, 140 donkeys and 175 cows have to be taken across a river. There is only one boat which will have to make many trips in order to do so. The lazy boatman has his own conditions for transporting them. He insists that he will ta ke the same number of animals in every trip and they have to be of the same kind. He will naturally like to take the largest possible number each time. Can you tell how many animals went in each trip?

Sol:

Given:

Number of goats = 205

Number of donkey = 140

Number of cows = 175

Therefore, The largest number of animals in one trip = HCF of 105. 140 and 175.

First consider 105 and 140

By applying Euclid's division lemma

140 = 105 x 1 + 35

105 = 35 x 3 + 0 4

Therefore, HCF of 105 and 140 = 35

Now consider 35 and 175

By applying Euclid's division lemma

175 = 35 x 5 +0

HCF of 105, 140 and 175 = 35

Q.20: The length, breadth and height of a room are 8 m 25 cm, 6 m 75 cm and 4 m 50 cm, respectively. Determine the longest rod which can measure the three dimensions of the room exactly.

Sol:

Length of room = 8m 25 cm = 825 cm

Breadth of room = 6m 75m = 675 cm

Height of room = 4m 50m = 450 cm

The required longest rod = HCF of 825, 675 and 450

First consider 675 and 450

By applying Euclid's division lemma

675 = 450 x 1 + 225

450 = 225 x 2 + 0

Therefore, HCF of 675 and 450 = 825

Now consider 625 and 825

By applying Euclid's division Lemma:

825 = 225 x 3 + 150

225 = 150 x 1+75

150 = 75 x 2 + 0

Therefore, HCF of 825, 675 and 450 = 75

Q.21: Express the HCF of 468 and 222 as 468x + 222y where x, y are integers in two different ways.

Sol:

We need to express the H.C.F. of 468 and 222 as 468x + 222y

Where x, y are integers in two different ways.

Given integers are 468 and 222, where 468 > 222

By applying Euclid’s division lemma, we get 468 = 222 x 2 + 24.

Since the remainder ≠ 0, so apply division lemma on divisor 222 and remainder 24

222 = 24 x 9 + 6.

Since the remainder ≠ 0, so apply division lemma on divisor 24 and remainder 6

24 = 6 x 4 + 0.

We observe that remainder is 0. So the last divisor 6 is the H.C.F. of 468 and 222 from we have

6 = 222 – 24 x 9

6 = 222 – (468 – 222 x 2) x 9

6 = 222 – 468 x 9 + 222 x 18

6 = 222 x 19 – 468 x 9 [Substituting 24 = 468 — 222 x 2]

16 = 222y + 468x, where x = – 9 and y = 19.

Hence, obtained.