

18/05/2020

classmate

Date

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Ch-1

Real Numbers

Exercise 1.2

Q.1 (i) 32 and 54

$$\begin{array}{r}
 32 \overline{) 54} (1 \\
 \underline{- 32} \\
 22 \overline{) 32} (1 \\
 \underline{- 22} \\
 10 \overline{) 22} (2 \\
 \underline{- 20} \\
 2 \overline{) 10} (5 \\
 \underline{- 10} \\
 0
 \end{array}$$

By Euclid's division lemma,

$$54 = 32 \times 1 + 22$$

$$32 = 22 \times 1 + 10$$

$$22 = 10 \times 2 + 2$$

$$10 = 2 \times 5 + 0$$

$$\therefore \text{HCF} = \boxed{2}$$

(ii) 18 and 24

$$\begin{array}{r}
 18 \overline{) 24} (1 \\
 \underline{- 18} \\
 6 \overline{) 18} (3 \\
 \underline{- 18} \\
 0
 \end{array}$$

By Euclid's division lemma,

$$24 = 18 \times 1 + 6$$

$$18 = 6 \times 3 + 0$$

$$\therefore \text{HCF} = \boxed{6}$$

Q1

(i) 70 and 30

$$\begin{array}{r} 30 \overline{) 70} \quad (2 \\ - 60 \\ \hline 10 \end{array} \quad \begin{array}{r} 30 \overline{) 30} \quad (3 \\ - 30 \\ \hline 0 \end{array}$$

By Euclid's division lemma,

$$70 = 30 \times 2 + 10$$

$$30 = 10 \times 3 + 0$$

$$\therefore \text{HCF} = \boxed{10}$$

(ii) 56 and 88

$$\begin{array}{r} 56 \overline{) 88} \quad (1 \\ - 56 \\ \hline 32 \end{array} \quad \begin{array}{r} 56 \overline{) 32} \quad (1 \\ - 32 \\ \hline 24 \end{array} \quad \begin{array}{r} 32 \overline{) 24} \quad (1 \\ - 24 \\ \hline 8 \end{array} \quad \begin{array}{r} 24 \overline{) 8} \quad (3 \\ - 24 \\ \hline 0 \end{array}$$

By Euclid's division lemma,

$$88 = 56 \times 1 + 32$$

$$56 = 32 \times 1 + 24$$

$$32 = 24 \times 1 + 8$$

$$24 = 8 \times 3 + 0$$

$$\therefore \text{HCF} = \boxed{8}$$

Q1

(v) 475 and 495

$$475 \overline{) 495} (1$$

$$\underline{- 475}$$

$$20 \overline{) 475} (23$$

$$\underline{- 460}$$

$$15 \overline{) 20} (1$$

$$\underline{- 15}$$

$$5 \overline{) 15} (3$$

$$\underline{- 15}$$

$$0$$

By Euclid's division lemma,

$$495 = 475 \times 1 + 20$$

$$475 = 20 \times 23 + 15$$

$$20 = 15 \times 1 + 5$$

$$15 = 5 \times 3 + 0$$

$$\therefore \text{HCF} = \boxed{5}$$

(vi) 75 and 243

$$75 \overline{) 243} (3$$

$$\underline{- 225}$$

$$18 \overline{) 75} (4$$

$$\underline{- 72}$$

By Euclid's division lemma,

$$243 = 75 \times 3 + 18$$

$$75 = 18 \times 4 + 3$$

$$18 = 3 \times 6 + 0$$

$$\therefore \text{HCF} = \boxed{3}$$

(vii) 240 and 6552

$$240 \overline{) 6552} (27$$

$$\underline{- 6480}$$

$$72 \overline{) 240} (3$$

$$\underline{- 216}$$

$$24$$

Q1 (vii)

$$\begin{array}{r} 24 \overline{) 72} (3 \\ - 72 \\ \hline 0 \end{array}$$

By Euclid's division lemma,

$$6552 = 240 \times 27 + 72$$

$$240 = 72 \times 3 + 24$$

$$72 = 24 \times 3 + 0$$

$$\therefore \text{HCF} = \boxed{24}$$

(viii) 155 and 1385

$$155 \overline{) 1385} (8$$

$$- 1240$$

$$145 \overline{) 155} (1$$

$$- 145$$

$$10 \overline{) 145} (14$$

$$- 140$$

$$5 \overline{) 10} (2$$

$$- 10$$

$$0$$

By Euclid's division lemma,

$$1385 = 155 \times 8 + 145$$

$$155 = 145 \times 1 + 10$$

$$145 = 10 \times 14 + 5$$

$$10 = 5 \times 2 + 0$$

$$\therefore \text{HCF} = \boxed{5}$$

(ix) 100 and 190

$$100 \overline{) 190} (1$$

$$- 100$$

$$90 \overline{) 100} (1$$

$$- 90$$

$$10 \overline{) 90} (9$$

$$- 90$$

$$0$$

By Euclid's

division lemma,

$$190 = 100 \times 1 + 90$$

$$100 = 90 \times 1 + 10$$

$$90 = 10 \times 9 + 0$$

$$\therefore \text{HCF} = \boxed{10}$$

Q.1

(x) 105 and 120

$$\begin{array}{r}
 105 \overline{) 120} \quad (1 \\
 \underline{- 105} \\
 15 \overline{) 105} \quad (7 \\
 \underline{- 105} \\
 0
 \end{array}$$

$$\begin{array}{r}
 \underline{- 105} \\
 0
 \end{array}$$

By Euclid's division lemma,

$$120 = 105 \times 1 + 15$$

$$105 = 15 \times 7 + 0$$

$$\therefore \text{HCF} = \boxed{15}$$

Q.2 (i) 135 and 225

$$\begin{array}{r}
 135 \overline{) 225} \quad (1 \\
 \underline{- 135} \\
 90 \overline{) 135} \quad (1 \\
 \underline{- 90} \\
 45 \overline{) 90} \quad (2 \\
 \underline{- 90} \\
 0
 \end{array}$$

By Euclid's division lemma,

$$225 = 135 \times 1 + 90$$

$$135 = 90 \times 1 + 45$$

$$90 = 45 \times 2 + 0$$

$$\therefore \text{HCF} = \boxed{45}$$

(ii) 196 and 38220

$$\begin{array}{r}
 196 \overline{) 38220} \quad (195 \\
 \underline{- 38220} \\
 0
 \end{array}$$

By Euclid's division lemma,

$$38220 = 196 \times 195 + 0$$

$$\therefore \text{HCF} = \boxed{196}$$

Q2

(ii) 867 and 255

$$\begin{array}{r}
 255 \overline{) 867} \quad (3 \\
 \underline{- 765} \\
 102 \\
 102 \overline{) 255} \quad (2 \\
 \underline{- 204} \\
 51 \\
 51 \overline{) 102} \quad (2 \\
 \underline{- 102} \\
 0
 \end{array}$$

By Euclid's division lemma,

$$867 = 255 \times 3 + 102$$

$$255 = 102 \times 2 + 51$$

$$102 = 51 \times 2 + 0$$

$$\therefore \text{HCF} = \boxed{51}$$

(iii) 184, 230 and 276

$$\begin{array}{r}
 184 \overline{) 230} \quad (1 \\
 \underline{- 184} \\
 46 \\
 46 \overline{) 184} \quad (4 \\
 \underline{- 184} \\
 0
 \end{array}$$

By EDL,

$$230 = 184 \times 1 + 46$$

$$184 = 46 \times 4 + 0$$

$$\text{HCF} = 46$$

$$\begin{array}{r}
 46 \overline{) 276} \quad (6 \\
 \underline{- 276} \\
 0
 \end{array}$$

By EDL,

$$276 = 46 \times 6 + 0$$

$$\therefore \text{HCF} = \boxed{46}$$

(iv) 136, 170 and 255

Q2(v)

$$\begin{array}{r}
 136 \overline{) 170} (1 \\
 \underline{- 136} \\
 34 \overline{) 136} (4 \\
 \underline{- 136} \\
 0
 \end{array}$$

By EDL,

$$170 = 136 \times 1 + 34$$

$$136 = 34 \times 4 + 0$$

$$\text{HCF} = 34$$

$$\begin{array}{r}
 34 \overline{) 255} (7 \\
 \underline{- 238} \\
 17
 \end{array}$$

$$\begin{array}{r}
 17 \overline{) 34} (2 \\
 \underline{- 34} \\
 0
 \end{array}$$

By EDL,

$$255 = 34 \times 7 + 17$$

$$34 = 17 \times 2 + 0$$

$$\therefore \text{HCF} = \boxed{17}$$

(vi) 1260 and 7344

$$\begin{array}{r}
 1260 \overline{) 7344} (5 \\
 \underline{- 6300} \\
 1044 \overline{) 1260} (1 \\
 \underline{- 1044} \\
 216
 \end{array}$$

$$\begin{array}{r}
 216 \overline{) 1044} (4 \\
 \underline{- 864} \\
 180
 \end{array}$$

$$\begin{array}{r}
 180 \overline{) 216} (1 \\
 \underline{- 180} \\
 36 \overline{) 180} (5
 \end{array}$$

Q2 (iv)

$$\begin{array}{r}
 36 \overline{) 180} (5 \\
 \underline{- 180} \\
 0
 \end{array}$$

By EDL,

$$7344 = 1260 \times 5 + 1044$$

$$1260 = 1044 \times 1 + 216$$

$$1044 = 216 \times 4 + 180$$

$$216 = 180 \times 1 + 36$$

$$180 = 36 \times 5 + 0$$

$$\therefore \text{HCF} = \boxed{36}$$

(vii) 2048 and 960

$$\begin{array}{r}
 960 \overline{) 2048} (2 \\
 \underline{- 1920} \\
 128 \\
 128 \overline{) 960} (7 \\
 \underline{- 896} \\
 64 \\
 64 \overline{) 128} (2 \\
 \underline{- 128} \\
 0
 \end{array}$$

By EDL,

$$2048 = 960 \times 2 + 128$$

$$960 = 128 \times 7 + 64$$

$$128 = 64 \times 2 + 0$$

$$\therefore \text{HCF} = \boxed{64}$$

(viii) 963 and 657

$$\begin{array}{r}
 657 \overline{) 963} (1 \\
 \underline{- 657} \\
 306 \\
 306 \overline{) 657} (2 \\
 \underline{- 612} \\
 45
 \end{array}$$

Q3(i)

$$306 \overline{) 657} \begin{array}{l} 2 \\ - 612 \\ \hline \end{array}$$

$$- 612$$

$$45 \overline{) 306} \begin{array}{l} 6 \\ - 270 \\ \hline \end{array}$$

$$- 270$$

$$36 \overline{) 45} \begin{array}{l} 1 \\ - 36 \\ \hline \end{array}$$

$$- 36$$

$$9 \overline{) 36} \begin{array}{l} 4 \\ - 36 \\ \hline \end{array}$$

$$- 36$$

$$0$$

By EDL,

$$963 = 657 \times 1 + 306$$

$$657 = 306 \times 2 + 45$$

$$306 = 45 \times 6 + 36$$

$$45 = 36 \times 1 + 9$$

$$36 = 9 \times 4 + 0$$

$$\therefore \text{HCF} = \boxed{9}$$

Linear combination-

$$9 = 45 - 36 \times 1$$

$$9 = 45 - (306 - 45 \times 6) \times 1$$

$$9 = 45 - 306 \times 1 + 45 \times 6$$

$$9 = 45 \times 7 - 306 \times 1$$

$$9 = (657 - 306 \times 2) \times 7 - 306 \times 1$$

$$9 = 657 \times 7 - 306 \times 14 - 306 \times 1$$

$$9 = 657 \times 7 - 306 \times 15$$

$$9 = 657 \times 7 - (963 - 657 \times 1) \times 15$$

$$9 = 657 \times 7 - 963 \times 15 + 657 \times 15$$

$$9 = 657 \times 22 - 963 \times 15$$

$$\boxed{9 = 963 \times (-15) + 657 \times 22}$$

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Real NumbersExercise 1.2

592 and 252

$$252 \overline{) 592} (2$$

$$\underline{- 504}$$

$$88 \overline{) 252} (2$$

$$\underline{- 176}$$

$$76 \overline{) 88} (1$$

$$\underline{- 76}$$

$$12 \overline{) 76} (6$$

$$\underline{- 72}$$

$$4 \overline{) 12} (3$$

$$\underline{- 12}$$

$$\underline{0}$$

By EDL,

$$592 = 252 \times 2 + 88$$

$$252 = 88 \times 2 + 76$$

$$88 = 76 \times 1 + 12$$

$$76 = 12 \times 6 + 4$$

$$12 = 4 \times 3 + 0$$

$$\therefore \text{HCF} = \boxed{4}$$

Linear combination-

$$4 = 76 - 12 \times 6$$

$$4 = 76 - (88 - 76 \times 1) \times 6$$

$$4 = 76 - 88 + 76 \times 6 \times 6 + 76 \times 6$$

$$4 = 76 \times 7 - 88 \times 6$$

$$4 = (252 - 88 \times 2) \times 7 - 88 \times 6$$

$$4 = 252 \times 7 - 88 \times 14 - 88 \times 6$$

$$4 = 252 \times 7 - 88 \times 20$$

$$4 = 252 \times 7 - (592 - 252 \times 2) \times 20$$

$$4 = 252 \times 7 - 592 \times 20 + 252 \times 40$$

$$\boxed{4 = 592 \times (-20) + 252 \times 47}$$

Q3

(iii) 506 and 1155

$$\begin{array}{r}
 506 \overline{) 1155} \quad (2 \\
 \underline{- 1012} \\
 143 \overline{) 506} \quad (3 \\
 \underline{- 429}
 \end{array}$$

By E.D.L,

$$1155 = 506 \times 2 + 143$$

$$506 = 143 \times 3 + 77$$

$$143 = 77 \times 1 + 66$$

$$77 = 66 \times 1 + 11$$

$$66 = 11 \times 6 + 0$$

$$\therefore \text{HCF} = 11$$

Linear combination -

$$11 = 77 - 66 \times 1$$

$$11 = 77 - (143 - 77 \times 1) \times 1$$

$$11 = 77 - 143 + 77 \times 1$$

$$11 = 77 \times 2 - 143 \times 1$$

$$11 = (506 - 143 \times 2) \times 2 - 143 \times 1$$

$$11 = 506 \times 2 - 143 \times 5$$

$$11 = 506 \times 2 - 143 \times 5$$

$$11 = 506 \times 2 - (1155 - 506 \times 2) \times 5$$

$$11 = 506 \times 2 - 1155 \times 5 + 506 \times 10$$

$$11 = 1155 \times (-5) + 506 \times 12$$

$$11 = 506 \times 2 - 143 \times 6 - 143 \times 1$$

$$11 = 506 \times 2 - 143 \times 7$$

$$11 = 506 \times 2 - (1155 - 506 \times 2) \times 7$$

$$11 = 506 \times 2 - 1155 \times 7 + 506 \times 14$$

$$11 = 1155 \times (-7) + 506 \times 16$$

Q3

(ii) 1288 and 575

$$575 \overline{)1288} (2$$

$$- 1150$$

$$138 \overline{)575} (4$$

$$- 552$$

By EDC,

$$1288 = 575 \times 2 + 138$$

$$575 = 138 \times 4 + 23$$

$$138 = 23 \times 6 + 0$$

$$\therefore \text{HCF} = \boxed{23}$$

$$23 \overline{)138} (6$$

$$- 138$$

$$0$$

Linear combination -

$$23 = 575 - 138 \times 4$$

$$23 = 575 - (1288 - 575 \times 2) \times 4$$

$$23 = 575 - 1288 \times 4 + 575 \times 8$$

$$\boxed{23 = 1288 \times (-4) + 575 \times 9}$$

Numbers = 615, 963

Remainder = 6

$\therefore$ 609 and 957 are completely divisible by the required no.

$\therefore$ The ~~no~~ required no. is HCF (609, 957)

$$609 \overline{)957} (1$$

$$- 609$$

$$348 \overline{)609} (1$$

$$- 348$$

$$261 \overline{)348} (1$$

$$- 261$$

$$87 \overline{)261} (3$$

$$- 261$$

$$0$$

$\therefore$ The required no is 87.

Q.5

408 and 1032

$$\begin{array}{r}
 408 \overline{) 1032} \quad (2) \\
 \underline{- 816} \\
 216 \overline{) 408} \quad (1)
 \end{array}$$

By EDL,

$$1032 = 408 \times 2 + 216$$

$$408 = 216 \times 1 + 192$$

$$216 = 192 \times 1 + 24$$

$$192 = 24 \times 8 + 0$$

$$\therefore \text{HCF} = 24$$

$$\begin{array}{r}
 - 216 \\
 192 \overline{) 216} \quad (1)
 \end{array}$$

$$\begin{array}{r}
 - 192 \\
 24 \overline{) 192} \quad (8)
 \end{array}$$

$$\begin{array}{r}
 - 192 \\
 \hline
 0
 \end{array}$$

Linear combination -

$$24 = 216 - 192 \times 1$$

$$24 = 216 - (408 - 216 \times 1) \times 1$$

$$24 = 216 - 408 \times 1 + 216 \times 1$$

$$24 = 216 \times 2 - 408 \times 1$$

$$24 = (1032 - 408 \times 2) \times 2 - 408 \times 1$$

$$24 = 1032 \times 2 - 408 \times 4 - 408 \times 1$$

$$24 = 1032 \times 2 - 408 \times 5$$

$$24 = 1032 \times m - 408 \times 5$$

$$\therefore \boxed{m = 2}$$

Q.8

Litres of 1st oil = 120l

Litres of 2nd oil = 180l

Litres of 3rd oil = 240l

Greatest capacity of 3 oils in one tin = HCF (120, 180, 240)

Q8

$$120 \overline{) 180} \begin{array}{r} 1 \\ - 120 \\ \hline 60 \end{array}$$

By EDL,

$$180 = 120 \times 1 + 60$$

$$120 = \cancel{60} \times 2 + 0$$

$$\therefore \text{HCF} = 60$$

$$- 120$$

$$60 \overline{) 120} \begin{array}{r} 2 \\ - 120 \\ \hline 0 \end{array}$$

By EDL,

$$240 = 60 \times 4 + 0$$

$$\therefore \text{HCF} = \boxed{60}$$

$$60 \overline{) 240} \begin{array}{r} 4 \\ - 240 \\ \hline 0 \end{array}$$

$$- 240$$

$$0$$

$$\therefore \text{greatest capacity} = \boxed{60 \text{ L}}$$

colour pencils in 1 pack = 24

crayons in 1 pack = 32

To buy the same no. of colour pencils and crayons, we need LCM (24, 32)

$$\text{LCM}(24, 32) = 96$$

$$\text{Packs of colour pencils} = \frac{96}{24}$$

$$= \boxed{4}$$

$$\text{Packs of crayons} = \frac{96}{32}$$

$$= \boxed{3}$$

2	1	24, 32
2		12, 16
2		6, 8
2		3, 4
2		3, 2
3		3, 1
		1, 1

Cartons of coke cans = 144

Cartons of Pepsi cans = 90

greatest no. of cartons in each store = HCF (90, 144)

Q.10

$$90 \overline{) 144} (1$$

$$\underline{- 90}$$

$$54 \overline{) 90} (1$$

$$\underline{- 54}$$

$$36 \overline{) 54} (1$$

$$\underline{- 36}$$

$$18 \overline{) 36} (2$$

$$\underline{- 36}$$

$$0$$

By EDL,

$$144 = 90 \times 1 + 54$$

$$90 = 54 \times 1 + 36$$

$$54 = 36 \times 1 + 18$$

$$36 = 18 \times 2 + 0$$

$$\therefore \text{HCF} = 18$$

$$\therefore \text{greatest no. of cartons} = \boxed{18}$$

Q.11

$$\text{Numbers} = 285, 1249$$

$$\text{Remainders} = 9 \text{ \& } 7$$

$\therefore 276 \text{ \& } 1242$ are completely divisible by the required no.

$\therefore$ The required no. is HCF (276, 1242)

$$276 \overline{) 1242} (4$$

$$\underline{- 1104}$$

$$138 \overline{) 276} (2$$

$$\underline{- 276}$$

$$0$$

By EDL,

$$1242 = 276 \times 4 + 138$$

$$276 = 138 \times 2 + 0$$

$$\therefore \text{HCF} = \boxed{138}$$

$\therefore$ The required no. is 138

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Real Numbers

Exercise 1.2

Q-12 Numbers = 280, 1245

Remainders = 4, 3

$\therefore$ 276 & 1242 are completely divisible by the required no.

$\therefore$ The required no. is HCF (276, 1242)

$$276 \overline{)1242} (4$$

$$- 1104$$

$$138 \overline{)276} (2$$

$$- 276$$

$$0$$

By EDL,

$$1242 = 276 \times 4 + 138$$

$$276 = 138 \times 2 + 0$$

$$\therefore \text{HCF} = \boxed{138}$$

$\therefore$ The required no. is 138.

Q-13 Numbers = 625, 3127 & 15628

Remainders = 1, 2, 3

$\therefore$ 625, 3125 & 15625 are completely divisible by the required no.

$\therefore$ The required no. is HCF ~~626, 3127, 15628~~ (625, 3125, 15625)

$$625 \overline{)3125} (5$$

$$- 3125$$

$$0$$

By EDL,

$$3125 = 625 \times 5 + 0$$

$$\therefore \text{HCF} = 625$$

Q13

$$625 \overline{) 15625} (25$$

$$- 1250$$

$$3125$$

$$- 3125$$

$$0$$

By EDL,

$$15625 = 625 \times 25 + 0$$

$$\therefore \text{HCF} = \boxed{625}$$

$\therefore$ The required no. is 625.

Q.14

Numbers = 445, 572, 693

Remainders = 4, 5, 6

$\therefore$ 441, 567 & 693 are completely divisible by the required no.

$\therefore$ The required no. is HCF (441, 567, 693)

$$441 \overline{) 567} (1$$

$$- 441$$

$$126 \overline{) 441} (3$$

$$- 378$$

$$63 \overline{) 126} (2$$

$$- 126$$

$$0$$

By EDL,

$$567 = 441 \times 1 + 126$$

$$441 = 126 \times 3 + 63$$

$$126 = 63 \times 2 + 0$$

$$\therefore \text{HCF} = 63$$

$$63 \overline{) 693} (11$$

$$- 63$$

$$63$$

$$- 63$$

$$0$$

By EDL,

$$693 = 63 \times 11 + 0$$

$$\therefore \text{HCF} = \boxed{63}$$

$\therefore$ The required no. is 63.

Q-15 Numbers = 2011, 2623

Remainders = 4, 5

$\therefore$ 2002 and 2618 are completely divisible by the required no.

$$2002 \overline{) 2618} (1$$

$$\underline{- 2002}$$

$$616 \overline{) 2002} (3$$

$$\underline{- 1848}$$

$$154 \overline{) 616} (4$$

$$\underline{- 616}$$

$$0$$

By EDL,

$$2618 = 2002 \times 1 + 616$$

$$2002 = 616 \times 3 + 154$$

$$616 = 154 \times 4 + 0$$

$$\therefore \text{HCF} = \boxed{154}$$

$\therefore$ The required no. is 154.

Q-16 Numbers = 1251, 9377, 15628

Remainders = 1, 2, 3

$\therefore$ 1250, 9375, 15625 are completely divisible by the required no.

$$1250 \overline{) 9375} (7$$

$$\underline{- 8750}$$

$$625 \overline{) 1250} (2$$

$$\underline{- 1250}$$

$$0$$

By EDL,

$$9375 = 1250 \times 7 + 625$$

$$1250 = 625 \times 2 + 0$$

$$\therefore \text{HCF} = 625$$

Q.16

$$\begin{array}{r}
 625 \overline{) 15625} \quad (25 \\
 \underline{- 1250} \\
 3125 \\
 \underline{- 3125} \\
 0
 \end{array}$$

By EDL,

$$15625 = 625 \times 25 + 0$$

$$\therefore \text{HCF} = \boxed{625}$$

$\therefore$ The required no. is 625.

Q.17

No. of chocolates of 1st brand in one pack = 24No. of chocolates of 2nd brand in one pack = 15

To buy the same no. of chocolates in both brands,
We need LCM (24, 15)

$$\text{LCM}(24, 15) = 120$$

$$\begin{array}{r}
 \text{Packs of 1st brand} = \frac{120}{24} \\
 = \boxed{5}
 \end{array}$$

$$\begin{array}{r}
 \text{Packs of 2nd brand} = \frac{120}{15} \\
 = \boxed{8}
 \end{array}$$

2	24, 15
2	12, 15
2	6, 15
3	3, 15
5	1, 5
	1, 1

Q.18

Size of bathroom = 10 ft $\times$ 8 ft.Size of bathroom in inches = (10 $\times$ 12) $\times$ (8 $\times$ 12)

$$= 120 \text{ inch} \times 96 \text{ inch}$$

$$\begin{array}{l}
 \text{Largest size of tile} = \text{HCF}(120, 96) \\
 = 24 \text{ inch}
 \end{array}$$

Q18

$$\begin{array}{r}
 96 \overline{) 120} \quad (1 \\
 \underline{- 96} \\
 24 \overline{) 96} \quad (4 \\
 \underline{- 96} \\
 0
 \end{array}$$

By EDL,

$$120 = 96 \times 1 + 24$$

$$96 = 24 \times 4 + 0$$

$$\therefore \text{HCF} = 24$$

$$\begin{aligned}
 \text{No. of tiles required} &= \frac{\text{Area of bathroom}}{\text{Area of tile}} \\
 &= \frac{120 \times 24}{24 \times 24} \\
 &= 5 \times 4 \\
 &= \boxed{20}
 \end{aligned}$$

$$\text{No. of pastries} = 15$$

$$\text{No. of biscuit packets} = 12$$

$$\text{No. of boxes required} = \text{HCF}(15, 12)$$

$$= 3$$

$$\text{Pastries in each box} = \frac{15}{3} = \boxed{5}$$

$$\text{Biscuit packets in each box} = \frac{12}{3} = \boxed{4}$$

$$\text{No. of goats} = 1005$$

$$\text{No. of donkeys} = 140$$

$$\text{No. of cows} = 175$$

$$\text{Largest no. of animals in each trip} = \text{HCF}(1005, 140, 175)$$

Q20

$$\begin{array}{r}
 105 \overline{) 140} \quad (1 \text{ time } 105) \\
 - 105 \\
 \hline
 35 \overline{) 105} \quad (3 \text{ times } 35) \\
 - 105 \\
 \hline
 0
 \end{array}$$

By EDL,

$$140 = 105 \times 1 + 35$$

$$105 = 35 \times 3 + 0$$

$$\therefore \text{HCF} = 35$$

$$35 \overline{) 175} \quad (5 \text{ times } 35)$$

$$- 175$$

$$0$$

By EDL,

$$175 = 35 \times 5 + 0$$

$$\therefore \text{HCF} = \boxed{35}$$

$\therefore$ 35 animals went on each trip.

Q.21 Length of room = 8m 25cm

$$= 825 \text{ cm}$$

Breadth of room = 6m 75cm

$$= 675 \text{ cm}$$

Height of room = 4m 50cm

$$= 450 \text{ cm}$$

Length of longest rod = HCF (825, 675, 450)

$$675 \overline{) 825} \quad (1 \text{ time } 675)$$

$$- 675$$

$$150 \overline{) 675} \quad (4 \text{ times } 150)$$

$$- 600$$

$$75 \overline{) 150} \quad (2 \text{ times } 75)$$

$$- 150$$

$$0$$

By EDL,

$$825 = 675 \times 1 + 150$$

$$675 = 150 \times 4 + 75$$

$$150 = 75 \times 2 + 0$$

$$\therefore \text{HCF} = 75$$

Q21

$$\begin{array}{r}
 75 \overline{) 450} (6 \\
 \underline{- 450} \\
 0
 \end{array}$$

By EDL,

$$450 = 75 \times 6 + 0$$

$$\therefore \text{HCF} = \boxed{75}$$

$\therefore$ The length of longest rod is 75 cm or 0.75 m.

Q-22 468 and 222

$$\begin{array}{r}
 222 \overline{) 468} (2 \\
 \underline{- 444} \\
 24 \overline{) 222} (9 \\
 \underline{- 216}
 \end{array}$$

By EDL,

$$468 = 222 \times 2 + 24$$

$$222 = 24 \times 9 + 6$$

$$24 = 6 \times 4 + 0$$

$$\therefore \text{HCF} = \boxed{6}$$

$$6 \overline{) 24} (4$$

$$\underline{- 24}$$

$$0$$

Linear combination:-

$$6 = 222 - 24 \times 9$$

$$6 = 222 - (468 - 222 \times 2) \times 9$$

$$6 = 222 - 468 \times 9 + 222 \times 18$$

$$6 = 468 \times (-9) + 222 \times 19$$

$$6 = 468x + 222y$$

$$\therefore x = \boxed{-9} \quad \& \quad y = \boxed{19}$$