



Exercise 2D

Q1

Answer :

The given numbers are 84 and 98.

We have:

$$\begin{array}{r|l} 2 & 84 \\ \hline 2 & 42 \\ \hline 3 & 21 \\ \hline 7 & 7 \\ \hline & 1 \end{array} \quad \begin{array}{r|l} 2 & 98 \\ \hline 7 & 49 \\ \hline 7 & 7 \\ \hline & 1 \end{array}$$

$$84 = 2 \times 2 \times 3 \times 7 = 2^2 \times 3 \times 7$$

$$98 = 2 \times 7 \times 7 = 2 \times 7^2$$

$$\therefore \text{HCF of the given numbers} = 2 \times 7 = 14$$

Q2

Answer :

The given numbers are 170 and 238.

We have:

$$\begin{array}{r|l} 2 & 170 \\ \hline 5 & 85 \\ \hline 17 & 17 \\ \hline & 1 \end{array} \quad \begin{array}{r|l} 2 & 238 \\ \hline 7 & 119 \\ \hline 17 & 17 \\ \hline & 1 \end{array}$$

1

$$170 = 2 \times 5 \times 17$$

$$238 = 2 \times 7 \times 17$$

$$\therefore \text{H.C.F. of the given numbers} = 2 \times 17 = 34$$

Q3

Answer :

The given numbers are 504 and 980.

We have:

$\begin{array}{r} 2 \overline{)504} \\ 2 \overline{)252} \\ 2 \overline{)126} \\ 3 \overline{)63} \\ 3 \overline{)21} \\ 7 \overline{)7} \\ 1 \end{array}$	$\begin{array}{r} 2 \overline{)980} \\ 2 \overline{)490} \\ 5 \overline{)245} \\ 7 \overline{)49} \\ 7 \overline{)7} \\ 1 \end{array}$
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$$504 = 2 \times 2 \times 2 \times 3 \times 3 \times 7 = 2^3 \times 3^2 \times 7$$

$$980 = 2 \times 2 \times 5 \times 7 \times 7 = 2^2 \times 5 \times 7^2$$

$$\therefore \text{HCF of the given numbers} = 2^2 \times 7 = 28$$

Q4

Answer :

The given numbers are 72, 108 and 180

We have:

$2 \overline{)72}$	$2 \overline{)108}$	$2 \overline{)180}$
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$2 \overline{)36}$	$2 \overline{)54}$	$2 \overline{)90}$
$2 \overline{)18}$	$3 \overline{)27}$	$3 \overline{)45}$
$3 \overline{)9}$	$3 \overline{)9}$	$3 \overline{)15}$
$3 \overline{)3}$	$3 \overline{)3}$	$5 \overline{)5}$
1	1	1

Now, $72 = 2 \times 2 \times 2 \times 3 \times 3 = 2^3 \times 3^2$

$108 = 2 \times 2 \times 3 \times 3 \times 3 = 2^2 \times 3^3$

$180 = 2 \times 2 \times 3 \times 3 \times 5 = 2^2 \times 3^2 \times 5$

$\therefore \text{HCF} = 2^2 \times 3^2 = 36$

Q5

Answer :

The given numbers are 84, 120 and 138.

We have:

	$2 \overline{)120}$	
$2 \overline{)84}$	$2 \overline{)60}$	$2 \overline{)138}$
$2 \overline{)42}$	$2 \overline{)30}$	$3 \overline{)69}$
$3 \overline{)21}$	$3 \overline{)15}$	$23 \overline{)23}$
$7 \overline{)7}$	$5 \overline{)5}$	1
1	1	

Now, $84 = 2 \times 2 \times 3 \times 7$

$120 = 2 \times 2 \times 2 \times 3 \times 5$

$138 = 2 \times 3 \times 23$

$\therefore \text{HCF} = 2 \times 3 = 6$

Q6

Answer :

The given numbers are 106, 159 and 371.

We have:

$$\begin{array}{r}
 2 \overline{) 106} \\
 53 \overline{) 53} \\
 1
 \end{array}
 \qquad
 \begin{array}{r}
 3 \overline{) 159} \\
 53 \overline{) 53} \\
 1
 \end{array}
 \qquad
 \begin{array}{r}
 7 \overline{) 371} \\
 53 \overline{) 53} \\
 1
 \end{array}$$

$$\text{Now, } 106 = 2 \times 53$$

$$159 = 3 \times 53$$

$$371 = 7 \times 53$$

$$\therefore \text{HCF} = 53$$

Q7

Answer :

Given numbers are 272 and 425.

We have:

$$\begin{array}{r}
 2 \overline{) 272} \\
 2 \overline{) 136} \\
 2 \overline{) 68} \\
 2 \overline{) 34} \\
 17 \overline{) 17} \\
 1
 \end{array}
 \qquad
 \begin{array}{r}
 5 \overline{) 425} \\
 5 \overline{) 85} \\
 17 \overline{) 17} \\
 1
 \end{array}$$

$$\text{Now, } 272 = 2 \times 2 \times 2 \times 2 \times 17$$

$$425 = 5 \times 5 \times 17$$

\therefore The required HCF is 17.

Q8

Answer :

The given numbers are 144, 252 and 630.

We have:

$\begin{array}{r} 2 \overline{)144} \\ 2 \overline{)72} \\ 2 \overline{)36} \\ 2 \overline{)18} \\ 3 \overline{)9} \\ 3 \overline{)3} \\ 1 \end{array}$	$\begin{array}{r} 2 \overline{)252} \\ 2 \overline{)126} \\ 3 \overline{)63} \\ 3 \overline{)21} \\ 7 \overline{)7} \\ 1 \end{array}$	$\begin{array}{r} 2 \overline{)630} \\ 3 \overline{)315} \\ 3 \overline{)105} \\ 5 \overline{)35} \\ 7 \overline{)7} \\ 1 \end{array}$
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$$\text{Now, } 144 = 2 \times 2 \times 2 \times 2 \times 3 \times 3$$

$$252 = 2 \times 2 \times 3 \times 3 \times 7$$

$$630 = 2 \times 3 \times 3 \times 5 \times 7$$

$$\therefore \text{HCF} = 2 \times 3 \times 3 = 18$$

Q9

Answer :

The given numbers are 1197, 5320 and 4389.

We have:

$\begin{array}{r} 3 \overline{)1197} \\ 3 \overline{)399} \\ 7 \overline{)133} \\ 19 \overline{)19} \\ 1 \end{array}$	$\begin{array}{r} 2 \overline{)5320} \\ 2 \overline{)2660} \\ 2 \overline{)1330} \\ 5 \overline{)665} \\ 7 \overline{)133} \\ 19 \overline{)19} \\ 1 \end{array}$	$\begin{array}{r} 3 \overline{)4389} \\ 7 \overline{)1463} \\ 19 \overline{)209} \\ 11 \overline{)11} \\ 1 \end{array}$
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