

S. 2

P. 178

"40"

(similar)

$$15^{10} \cdot 24^7 \cdot 125^6$$

$$= (3^1 \cdot 5^1)^{10} \cdot (2^3 \cdot 3^1)^7 \cdot (5^3)^6$$

$$= 3^{10} \cdot 5^{10} \cdot 2^{21} \cdot 3^7 \cdot 5^{18}$$

$$= \boxed{2^{21} \cdot 3^{17} \cdot 5^{28}}$$

$$15 = 3 \cdot 5$$

$$24 = 2^3 \cdot 3$$

$$\begin{array}{c} \wedge \\ (2) \ 12 \end{array}$$

$$\begin{array}{c} \wedge \\ (2) \ 6 \end{array}$$

$$\begin{array}{c} \wedge \\ (2) \ (3) \end{array}$$

$$125 = 5^3$$

$$\begin{array}{c} \wedge \\ (5) \ 25 \end{array}$$

$$\begin{array}{c} \wedge \\ (5) \ (5) \end{array}$$

other than
a factor
Tree

(3)

$$\begin{array}{c} (2) \ 6 \\ \hline \end{array}$$

$$\begin{array}{c} (2) \ 12 \\ \hline \end{array}$$

$$\begin{array}{c} (2) \ 24 = 2^3 \cdot 3 \\ \hline \end{array}$$

Find the ^{GCD}_{OR} GCF & LCM

of $x, y,$ and $z,$ where

$$x = 2^3 \cdot 3^7 \cdot 7^2 \cdot 5^0, \quad y = 2^4 \cdot 3^1 \cdot 5^3 \cdot 7^0$$

$$\text{and } z = 2^0 \cdot 3^2 \cdot 5^1 \cdot 7^3 \cdot 11^2$$

$$\begin{aligned} \text{GCD/GCF} &= 2^0 \cdot 3^1 \cdot 5^0 \cdot 7^0 \cdot 11^0 \\ &= 1 \cdot 3 \cdot 1 \cdot 1 \cdot 1 = \boxed{3} \end{aligned}$$

$$\text{LCM} = \boxed{2^4 \cdot 3^7 \cdot 5^3 \cdot 7^3 \cdot 11^2}$$

Ch. 6 Fractions

When Adding or Subtract Fractions
we require a common Denominator.

eg. ① $\frac{3}{3} \cdot \frac{1}{2} + \frac{1}{3} \cdot \frac{2}{2}$

$$= \frac{3}{6} + \frac{2}{6}$$

$$= \frac{3+2}{6} = \boxed{\frac{5}{6}}$$

We use 6
as the
Common Denominator
(since both 2 & 3
are factors of 6)

② $\frac{5}{12} - \frac{3}{16}$

$$= \frac{2^2}{2^2} \cdot \frac{5}{2^2 \cdot 3^1} - \frac{3}{2^4 \cdot 3^0} \cdot \frac{3^1}{3^1}$$

$$= \frac{20}{48} - \frac{9}{48} = \boxed{\frac{11}{48}}$$

We could use
 $12 \cdot 16 = 192$ as
the Common Denominator

Instead use
the LCM!

$$12 = 2^2 \cdot 3^1, 16 = 2^4 \cdot 3^0$$

$$\Rightarrow \text{LCM} = 2^4 \cdot 3^1$$

$$= 16 \cdot 3 = 48$$

$\Rightarrow 48$ is the

LCM - Lowest
Common
Denominator

VS. Using 192 as
the Common Denom.

$$\frac{5}{12} \cdot \frac{16}{16} - \frac{3}{16} \cdot \frac{12}{12} = \frac{80}{192} - \frac{36}{192} = \frac{44}{192}$$

$$\frac{44 \div 2}{192 \div 2} = \frac{22 \div 2}{96 \div 2} = \boxed{\frac{11}{48}}$$

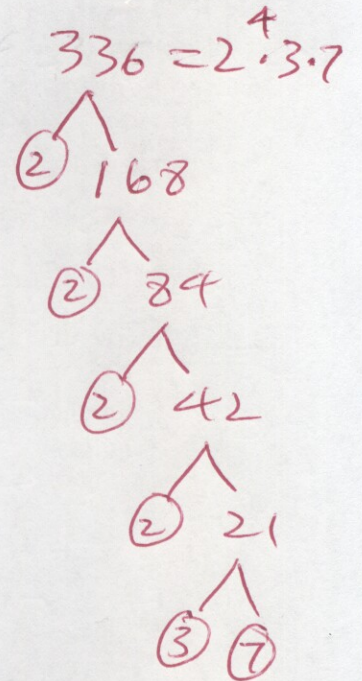
Give answer in simplest form.

$$\textcircled{3} \quad \frac{17}{336} + \frac{103}{292}$$

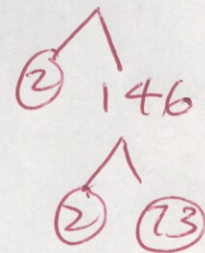
$$= \frac{17}{2^4 \cdot 3 \cdot 7} \cdot \frac{73}{73} + \frac{103}{2^2 \cdot 73} \cdot \frac{2^2 \cdot 3 \cdot 7}{2^2 \cdot 3 \cdot 7}$$

$$= \frac{1241 + 8652}{2^4 \cdot 3 \cdot 7 \cdot 73}$$

$$= \boxed{\frac{9893}{2^4 \cdot 3 \cdot 7 \cdot 73} = \frac{9893}{24,528}}$$



292 = 2² · 73



⇒ LCD = LCM of 336 & 292
 = 2⁴ · 3¹ · 7¹ · 73¹
 = 24,528

$$\textcircled{4} \quad \frac{61}{1500} - \frac{71}{4725}$$

$$= \frac{61}{2^2 \cdot 3 \cdot 5^3} \cdot \frac{3^2 \cdot 7}{3^2 \cdot 7}$$

$$- \frac{71}{3^3 \cdot 5^2 \cdot 7} \cdot \frac{2^2 \cdot 5}{2^2 \cdot 5}$$

1500 = 2² · 3 · 5³

4725 = 3³ · 5² · 7

LCD = 2² · 3³ · 5³ · 7

= 94,500

$$= \frac{3843 - 1420}{2^2 \cdot 3^3 \cdot 5^3 \cdot 7}$$

$$= \boxed{\frac{2423}{2^2 \cdot 3^3 \cdot 5^3 \cdot 7} = \frac{2423}{94,500}}$$