

# Test 1

Friday 14 Sept. 2018

Maths 10

Arithmetic ( GCF, LCM, Fractions, Powers)

Name: \_\_\_\_\_

1) Find the Common Factor (GCF) and the Least Common Multiple (LCM)

of

i) 630 and 1134

[2marks]

$$\left. \begin{array}{l} 630 = 2 \times 3^2 \times 5 \times 7 \\ 1134 = 2 \times 3^4 \times 7 \end{array} \right\} \Rightarrow \left\{ \begin{array}{l} \text{GCF}(630, 1134) = 2 \times 3^2 \times 7 = \boxed{126} \\ \text{LCM}(630, 1134) = 2 \times 3^4 \times 5 \times 7 = \boxed{5670} \end{array} \right.$$

ii) 2304 and 2400

[2marks]

$$\left. \begin{array}{l} 2304 = 2^8 \times 3^2 \\ 2400 = 2^5 \times 3 \times 5^2 \end{array} \right\} \Rightarrow \left\{ \begin{array}{l} \text{GCF}(2304, 2400) = 2^5 \times 3 = \boxed{96} \\ \text{LCM}(2304, 2400) = 2^8 \times 3^2 \times 5^2 = \boxed{57600} \end{array} \right.$$

2) Simplify

$$\text{i) } \frac{1}{2304} - \frac{1}{2400} = \frac{25}{57600} - \frac{24}{57600} = \boxed{\frac{1}{57600}}$$

$$\text{ii) } \frac{42}{99} + \frac{140}{22} - \frac{803}{121} = \frac{14}{33} + \frac{70}{11} - \frac{803}{11 \times 11} = \frac{224 \times 11}{3 \times 11 \times 11} - \frac{3 \times 803}{3 \times 11 \times 11} = \frac{55}{363} = \boxed{\frac{5}{33}}$$

$$\text{iii) } \frac{3}{7} + \frac{12}{28} - \frac{9}{35} = \frac{3}{7} + \frac{3}{7} - \frac{9}{35} = \frac{6}{7} - \frac{9}{35} = \frac{30-9}{35} = \frac{21}{35} = \boxed{\frac{3}{5}}$$

3) Simplify

$$\text{i) } \frac{3}{2 - \frac{3}{4 + \frac{1}{5}}} \div \frac{1}{2 + \frac{4}{2 - \frac{1}{4}}} = \frac{3}{2 - \frac{3}{\frac{21}{5}}} \div \frac{1}{2 + \frac{4}{\frac{7}{4}}} = \frac{3}{2 - \frac{15}{21}} \div \frac{1}{2 + \frac{16}{7}} = \frac{3}{\frac{9}{7}} \div \frac{1}{\frac{30}{7}} = \frac{21}{9} \div \frac{7}{30} = \frac{7}{3} \cdot \frac{30}{7} = \boxed{10}$$

$$\text{ii) } \frac{\frac{\frac{2}{\frac{1}{4} - \frac{1}{6}}}{1}}{\frac{\frac{3}{4} - \frac{2}{3}}{1}} = \frac{\frac{2}{\frac{3-2}{12}}}{\frac{9-8}{12}} = \frac{\frac{2}{1}}{\frac{1}{12}} = \frac{24}{12} = \frac{24}{12} = \boxed{2}$$

4) Simplify

$$\frac{3^{15} \times 2^8 \times 5^6}{5^5 \times 18 \times 3^{12} \times 2^7} = \frac{2^8 \times 3^{15} \times 5^6}{2^{7+1} \times 3^{12+2} \times 5^5} = 3 \times 5 = \boxed{15}$$