MPM1DI Numerical Skills

1. Evaluate:

a) $\frac{-5}{9} \div 10 + 3\frac{1}{8} \times \left(-\frac{4}{15}\right)$

$= -\frac{5}{9} \div \frac{10}{1} - \frac{25}{8} \times \frac{4}{15}$

$= -\frac{\cancel{5}^{1}}{9} \times \frac{1}{\cancel{10}_{2}} - \frac{\cancel{25}^{5}}{\cancel{8}_{2}} \times \frac{\cancel{4}^{1}}{\cancel{15}_{3}}$

$= -\frac{1}{18} - \frac{5}{6}$

$= -\frac{1}{18} - \frac{15}{18}$

$= -\frac{16}{18}$

$= -\frac{8}{9}$

b) $-0.9 + 0.\overline{6} - 1$

$= -\frac{9}{10} + \frac{6}{9} - \frac{1}{1}$

$= -\frac{9}{10} + \frac{2}{3} - \frac{1}{1}$

$= -\frac{27}{30} + \frac{20}{30} - \frac{30}{30}$

$= -\frac{57}{30} + \frac{20}{30}$

$= -\frac{37}{30}$

or $-1\frac{7}{30}$

c) $5^{-2} + \left(2\frac{1}{2}\right)^{-2}$

$= 5^{-2} + \left(\frac{5}{2}\right)^{-2}$

$= \frac{1}{5^2} + \left(\frac{2}{5}\right)^{2}$

$= \frac{1}{25} + \frac{4}{25}$

$= \frac{5}{25}$

$= \frac{1}{5}$

d) $\frac{-7}{36} \times \frac{-5}{-14} \div \left(-\frac{11}{12}\right)$

$= +\frac{\cancel{7}^{1}}{\cancel{36}_{3}} \times \frac{5}{\cancel{14}_{2}} \times \frac{\cancel{12}^{1}}{11}$

$= +\frac{5}{66}$

e) $2^0 - \left(2^3\right)^2$

$= 1 - 2^6$

$= 1 - 64$

$= -63$

f) $2\,500\,000 \times 0.000\,2$ (using scientific notation)

$= (2.5 \times 10^{6}) \times (2.0 \times 10^{-4})$

$= (2.5 \times 2.0) \times (10^{6} \times 10^{-4})$

$= 5.0 \times 10^{2}$

or $= 5 \times 100$

$= 500$

g) $\sqrt{\frac{4}{25}} - \sqrt{3^2} + (0.2)$

$= \frac{2}{5} - \frac{3}{1} + \left(\frac{2}{10}\right)^2$

$= \frac{2}{5} - \frac{3}{1} + \left(\frac{1}{5}\right)^2$

$= \frac{2}{5} - \frac{3}{1} + \frac{1}{25}$

$= +\frac{10}{25} - \frac{75}{25} + \frac{1}{25}$

$= +\frac{11}{25} - \frac{75}{25}$

$= -\frac{64}{25}$

$\left(\text{or } -2\frac{14}{25}\right)$