Math 2 : HW 1

1.2

1) $\frac{5}{16} \cdot \frac{8}{10}$

$= \frac{5 \cdot 8}{8 \cdot 2 \cdot 5 \cdot 2}$

$= \frac{\cancel{5} \cdot \cancel{8}}{\cancel{8} \cdot 2 \cdot \cancel{8} \cdot 2}$

$= \frac{1}{4}$

2) $\frac{2\pi}{3} \cdot \frac{3\pi}{4} = \frac{\pi^2}{2}$

3) $-\frac{1}{3} \cdot -\frac{9}{5} = \frac{3}{5}$

4) $\frac{15}{28} \cdot \frac{12}{5} \cdot \frac{7}{8}$

$= \frac{5 \cdot 3 \cdot 4 \cdot 3 \cdot 7}{7 \cdot 4 \cdot 5 \cdot 4 \cdot 2}$

$= \frac{\cancel{5} \cdot 3 \cdot \cancel{4} \cancel{3} \cdot \cancel{7}}{\cancel{7} \cdot \cancel{4} \cdot \cancel{5} \cdot \cancel{4} \cdot 2} = \frac{9}{8}$

5) $\frac{\frac{4}{75}}{\frac{8}{25}} = \frac{4}{75} \cdot \frac{25}{8} = \frac{1}{6}$

7) $\frac{\frac{3\pi}{7}}{\frac{2\pi}{3}} = \frac{3\pi}{7} \cdot \frac{3}{2\pi} = \frac{9}{7}$

10) $\left(\frac{x+2}{1+y}\right) \cdot \left(\frac{1-y}{x}\right)$

$= \frac{x - xy + 2 - 2y}{x + xy}$

12) $\frac{xy}{wz} \cdot \frac{w^2 z}{x^2 y^2} = \frac{w}{xy}$

1.3

3) $\frac{2}{5} - \frac{1}{2} + \frac{1}{3}$

$= \frac{12 - 15 + 10}{30}$

$= \frac{7}{30}$

6) $\frac{5}{6} - \frac{4}{3} + \frac{2}{9} - \frac{3}{2}$

$= \frac{15 - 24 + 4 - 27}{18} = \frac{-32}{18} = -\frac{16}{9}$

8) $\dfrac{\frac{1}{4}-\frac{2}{3}}{\frac{3}{2}-\frac{2}{5}} = \dfrac{\frac{3-8}{12}}{\frac{15-4}{10}}$

$= \dfrac{-\frac{5}{12}}{\frac{11}{10}}$

$= -\frac{5}{12} \cdot \frac{10}{11} = -\frac{50}{132}$

$= -\frac{25}{66}$

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14) $\frac{s}{tu} + \frac{t}{u} + \frac{u}{s}$

$= \dfrac{s^2 + t^2 s + u^2 t}{ust}$

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21) $\frac{4yz}{x^2} - \frac{2z}{xy^2} + \frac{1}{xyz}$

$= \dfrac{4y^3z^2 - 2xz^2 + xy}{x^2y^2z}$