

Problem 1 Simplify the following expression

[/ 6 marks]

1) $\frac{1}{2} + \frac{2}{3} + \frac{3}{4}$

2) $\sqrt{\left(\frac{1}{4} - \frac{1}{9}\right)\left(\frac{1}{5} - \frac{4}{25}\right)}$

Problem 2 Simplify

[/ 8 marks]

1) $\sqrt{72}$

3) $\frac{\sqrt{30} \times \sqrt{20}}{5\sqrt{6}}$

2) $\frac{\sqrt{72}}{\sqrt{8}}$

4) $\frac{(3 + \sqrt{8})^2 + (3 - \sqrt{8})^2}{2}$

Problem 3 Expand and simplify as far as possible

[/ 8 marks]

1) $\frac{(2x^2)^3}{\sqrt{64x^{10}}}$

3) $\left(\frac{4x}{3y}\right)^2 \left(\frac{27y^3}{18x^2}\right)$

2) $\sqrt{(6x)(2x^3)(3x^2)}$

4) $(x + 2y)^2 - (2x - y)^2$

Problem 4 Factorise

[/ 10 marks]

1) $12x^2 - 3y^{14}$

3) $x^2y^2 - 5xy + 6$

2) $12x^2yz^3 - 3y^{15}z^3$

4) $x^2y^3 + 5xy^2 + 6y$

Problem 5 Solve using the method of 'completing the square'

1) $x^2 - 3x - 28 = 0$

[/ 6 marks]

2) $-2x^2 + 20x - 30 = 0$

tot:

[/ 38 marks]