1. Evaluate each of the following integrals. Show your steps and simplify your final answer. For each integral state which technique(s) you used. If you use the integral table make sure you state which integral on the table you used. Leave all answers in exact form. (Note: There are a total of eight integrals.)

   (a) $\displaystyle\int \frac{\mathrm{d}z}{(9 - z^2)^2}$

   (b) $\displaystyle\int \frac{2t^2 + 4t - 9}{t^3 + 9t}\,\mathrm{d}t$

(c) $\displaystyle\int \sin^2(2\theta)\cos^2(2\theta)$

(d) $\displaystyle\int \frac{-3w^2 + 9w + 4}{w^3 + 4w^2}\,dw$

(e) $\displaystyle\int \frac{\mathrm{d}x}{\sqrt{x^2 - 6x + 13}}$

(f) $\displaystyle\int \frac{y^3}{\sqrt{49 - y^2}}\mathrm{d}y$

(g) $\displaystyle\int_{p=-\frac{4\sqrt{3}}{15}}^{p=\frac{4\sqrt{3}}{15}} 80(16+25p^2)^{-3/2}\,dp$

(h) $\displaystyle\int \frac{5x-2}{x^2-8x+20}\,\mathrm{d}x$

2. $\displaystyle\int_1^2 \frac{(x-1)^2 + 2}{x^3 + 3x^2}dx$

3. $\displaystyle\int_1^2 \frac{3x^4 + 11x^2 + 2x - 20}{x^3 + 4x}dx$

$$\int_{-1}^{e-2} \frac{dt}{t-2}$$