LAST NAME	FIRST NAME	DATE

1 (6 points). Factor each expression completely:

(a) $x^2 + x - 12$

(b) $\sin^2 \alpha + \sin \alpha - 12$

(c) $5y^2 - 80$

(d) $10 \tan^2 \theta - 490$

(e) $18z^4 - 12z^3$

(f) $6 \cos^3 \beta + \cos^2 \beta - 5 \cos \beta$

2 (6 points). Factor and then simplify each expression:

(a) $\dfrac{18m^2 - 24m}{60m}$

(b) $\dfrac{\cot \delta + 1}{\cot^2 \delta + 8 \cot \delta + 7}$

(c) $\dfrac{n^2 + 4n - 12}{n^2 - 7n + 10}$

(d) $\dfrac{\csc^2 \gamma + 14 \csc \gamma + 48}{\csc^2 \gamma + 15 \csc \gamma + 56}$

(e) $\dfrac{k^2 - 12k + 32}{k^2 - 64}$

(f) $\dfrac{3 \sec^2 \mu - 29 \sec \mu + 40}{5 \sec^2 \mu - 30 \sec \mu - 80}$