Factor each of the following completely. You need to look for greatest common factors. Expect difference of squares and perfect square trinomials to be embedded in the expressions. You are going to be introduced to another type of factoring when you get to #6.

1. $2m^4 + 22m^3 + 56m^2$

Example of Factoring by Grouping

$$6r^3 + 8r^2 - 21r - 28$$

$$(6r^3 + 8r^2) + (-21r - 28)$$

$$2r^2(3r + 4) - 7(3r + 4)$$

$$(3r + 4)(2r^2 - 7)$$

2. $16n^2 + 48$

6. $x^3 - 2x^2 + 9x - 18$

3. $2x^2 - 24xy + 64y^2$

7. $z^2 + 3z + zk + 3k$

4. $2 - 162z^4$

8. $t^2(t + 3) + 6t(t + 3) + 9(t + 3)$

5. $147m^2 + 84m + 12$