FACTORING POLYNOMIALS

Factor each polynomial completely

1) $x^3 - 5x^2 - x + 5$

$$(x - 5)(x + 1)(x - 1)$$

2) $x^4 - 2x^2 - 15$

$$(x^2 - 5)(x^2 + 3)$$

3) $x^6 - 26x^3 - 27$

$$(x - 3)(x^2 + 3x + 9)$$
$$(x + 1)(x^2 - x + 1)$$

4) $x^6 + 2x^4 - 16x^2 - 32$

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

5) $x^4 - 13x^2 + 40$

$$(x^2 - 5)(x^2 - 8)$$

6) $x^9 - x^6 - x^3 + 1$

$$(x - 1)^2(x^2 + x + 1)^2$$
$$(x + 1)(x^2 - x + 1)$$

7) $x^6 - 4x^2$

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

8) $x^4 + 14x^2 + 45$

$$(x^2 + 5)(x^2 + 9)$$