Math 151 Sec F0501/F0502
Extra Problems for Chapter 5

1. Factor $64a^3x^3 - 125$.

ans: $(4ax - 5)(16a^2x^2 + 20ax + 25)$

2. Factor $-x^2 + 2x + 3$.

ans: $-(x - 3)(x + 1)$

3. Factor $121z - z^3$.

ans: $z(11 - z)(11 + z)$

4. Factor $ax^2 + bx - a^2z - bz$.

ans: $(a^2 + b)(x - z)$

5. Factor $100(h + 1)^3 - (h + 1)^5$.

ans: $(h + 1)^3(11 + h)(9 - h)$

6. Factor $t^4 - 2t^2 + 1$.

ans: $(t^2 - 1)^2$

7. Factor $x^2z^2 + xzt + xyz + yt$.

ans: $(xz + t)(xz + y)$

8. Factor $(x + 1)^{1/2} - (x + 1)^{3/2}$.

ans: $-x(x + 1)^{1/2}$

9. Factor $x^3 + x^2 - 7x + 5$.

ans: $\left(x + 1 - \sqrt{6}\right)\left(x + 1 + \sqrt{6}\right)(x - 1)$

10. Factor $3x^3 - 5x^2 - 16x + 12$.

ans: $(x - 3)(3x - 2)(x + 2)$

11. Textbook: Section 5.5: 2, 4, 6.

ans: $(x^2 - 2)/(2(x - \sqrt{2}))$, $(x^2 + (1 - \sqrt{11})x - \sqrt{11})/(x^2 - 11)$, $(x^2 + 6)(x - \sqrt{6})$

12. Textbook: Section 5.6: 2, 4, 6, 8.

ans: $2|x|\sqrt{1 + 2x^2}$, $x^6\sqrt{3y}$, $3x^2\sqrt[3]{y}$, $x^2y\sqrt[3]{xy + y^2}$