Math 55 Ch. 5 quiz 1 **Name:** Key

Factor each polynomial completely given below. If a polynomial is not factorable, state this.

1. $3x^2 - 21x$

1. $3x(x-7)$

2. $7x^3 + 5x^2 - 21x - 15$

2. $(x^2-3)(7x+5)$

$= (7x^3 + 5x^2) + (-21x - 15)$

$= x^2(7x+5) + (-3)(7x+5)$

$= (x^2-3)(7x+5)$

3. $t^2 - 9t + 14$

3. $(t-7)(t-2)$

$= (t-7)(t-2)$

Key

4. $6x^2 + 17x + 12$

$6 \cdot 12 = 72$ and $72 = 8 \cdot 9$

So $6x^2 + 8x + 9x + 12$

$= (6x^2 + 8x) + (9x + 12)$

$= 2x(3x+4) + 3(3x+4)$

$= (2x+3)(3x+4)$

4. $(2x+3)(3x+4)$

5. $9x^3 - 6x^2 - 24x$

$= 3x(3x^2 - 2x - 8)$

$= 3x(3x+4)(x-2)$

5. $3x(3x+4)(x-2)$

foil check

$(3x+4)(x-2)$

$= 3x^2 - 6x + 4x - 8$

$= 3x^2 - 2x - 8$ ✓