

MTH 092 — Summer I 2008, NSF Special Session
Essex County College — Division of Mathematics
Quiz # 7¹ — April 27, 2008

Name: _____

Signature: _____

Show all work clearly and in order, and box your final answers. Justify your answers algebraically whenever possible. You have 20 minutes to take this 10 point quiz. Please, no calculators and no cellular phones.

1. Factor. $4x^2 - 12x$

2 points

Work: Factor out the GCF.

$$4x^2 - 12x = \boxed{4x(x - 3)}$$

2. Factor. $2x^2y - 6x^2y^2 + 12xy$

2 points

Work: Factor out the GCF.

$$2x^2y - 6x^2y^2 + 12xy = \boxed{2xy(x - 3xy + 6)}$$

3. Factor. $x^2 - 3x + 4ax - 12a$

2 points

Work: Factor by grouping.

$$\begin{aligned} x^2 - 3x + 4ax - 12a &= (x^2 - 3x) + (4ax - 12a) \\ &= x(x - 3) + 4a(x - 3) \\ &= \boxed{(x - 3)(x + 4a)} \end{aligned}$$

4. Factor. $x^2 + 5x + 6$

2 points

Work: Trial and error.

$$x^2 + 5x + 6 = \boxed{(x + 3)(x + 2)}$$

¹This document was prepared by Ron Bannon using L^AT_EX 2_ε.

5. Factor. $3y^4 + 54y^3 + 135y^2$

2 points

Work: First factor out the GCF, then trial and error.

$$\begin{aligned} 3y^4 + 54y^3 + 135y^2 &= 3y^2 (y^2 + 18y + 45) \\ &= \boxed{3y^2 (y + 15) (y + 3)} \end{aligned}$$