MATH 1010-2: QUIZ 7
October 21, 2010

1. (4 points) Factor the following expression completely:
$$x^4 - 16.$$

Solution. We first recogize this as a difference of two squares:
$$x^4 - 16 = (x^2 - 4)(x^2 + 4),$$
and then notice that the first terms is again a difference of two squares to obtain
$$(x + 2)(x - 2)(x^2 + 4).$$
This is our final answer

2. (4 points) Solve for x
$$2x^2 + 3 = 7x.$$

Solution. We first bring everything onto the left-hand side,
$$2x^2 - 7x + 3 = 0.$$
Then we factor to get
$$(2x - 1)(x - 3) = 0.$$
By the Zero Multiplication Property, either $2x - 1 = 0$ or $x - 3 = 0$. Hence either $x = \frac{1}{2}$ or $x = 3$.

3. (2 points) Indicate if the following assertion is true or false: The domain of
$$\frac{x + 2}{x(x + 3)}$$
consists of all real numbers except for $x = -2$ and $x = -3$.

TRUE   FALSE