Math 181 Honors Quiz 2 Version A

1. Determine all intervals of numbers x satisfying the inequality $x^2 < x$

2. State and prove the pythagorean theorem. State both the hypothesis and conclusion of the theorem as well as giving a proof written using complete sentences.

3. Write $x^2 + 6x - 8$ in the form $(x + h)^2 + k$ by completing the square.

4. The field axioms are

(1)	$a + (b + c) = (a + b) + c$	(2)	$a(bc) = (ab)c$
(3)	$a + b = b + a$	(4)	$ab = ba$
(5)	$a(b + c) = ab + ac$	(6)	$(a + b)c = ac + bc$
(7)	$a + 0 = a$	(8)	$a \cdot 1 = a$
(9)	$a + (-a) = 0$	(10)	$a \cdot \dfrac{1}{a} = 1$ if $a \neq 0$.

Use the axioms to prove that $a \cdot 0 = 0$. Carefully state which axiom is being used at each step of your argument.