

Facts

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M.F. Atiyah, I.G. MacDonald *Introduction to Commutative Algebra*

Fact 1. *For saturated S , if $f(a)$ is a unit in $S^{-1}A$, then $a \in S$.*

Proof.

$$\frac{a}{1} \cdot \frac{b}{t} = \frac{1}{1}$$

$$\frac{ab}{t} = \frac{1}{1}$$

$$(ab, t) \equiv (1, 1)$$

$$(ab - t)u = 0$$

$$abu = tu$$

$$abu \in S$$

As S is saturated, $a \in S$.

□