

2008 F=ma Exam: Problem 11

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By Newton's 2nd law, we have

$$F - f = ma$$

Since friction is kinetic,

$$F - \mu mg = ma$$

$$\mu = \frac{F - ma}{mg}$$

We found $m = 5 \text{ kg}$ in the previous problem, so we just need to choose a data point to get values of F and a ,

$$\mu = \frac{4.05 \text{ N} - (5 \text{ kg})(0.295 \text{ m/s}^2)}{(5 \text{ kg})(10 \text{ m/s}^2)} = 0.05$$

Thus, the answer is A.