P #48

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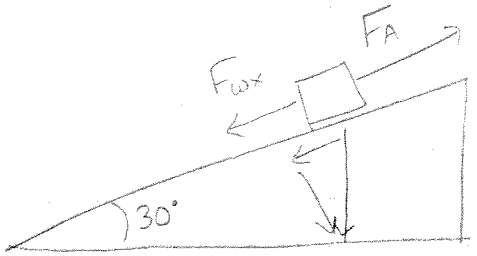
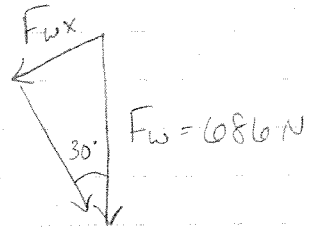
$m = 70\ kg$
$\theta = 30°$

$d = 60\ m$
$v = 2.0\ m/s$




Find $F_A$ using right triangles:




$F_w = m \cdot g$
$= (70\ kg)(9.8\ m/s^2)$
$= 686\ N$

$F_{wx} = (686\ N) \cdot \sin 30°$
$= 343\ N$

$F_A$ cancels weight ($F_{wx}$) so $F_A = 343\ N$

a) $W = F \cdot d$

$= (343\ N)(60\ m)$

$\boxed{W = 20,580\ J}$

b) $P = F \cdot v$

$= (343\ N)(2.0\ m/s)$

$\boxed{P = 686\ W}$