NEWTON'S SECOND LAW PROBLEMS
brief answers

Brief solutions to the problems are available in the Brief Solutions document.

Step-by-step solutions to each problem are available in the Step-by-Step Solutions document, and in the YouTube videos.

The problems are available in the Problems document.

You can find links to these resources at my website:
www.freelance-teacher.com

Links to the documents are also in the video description boxes for the YouTube videos.

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Video (1)
The block has acceleration with magnitude 2.5 m/s^2, and direction "right".

Video (2)
The acceleration has direction "parallel to, and down, the hill" and magnitude 4.0 m/s^2.

Video (3)
$\mu_k = 0.51$

Video (5)
It takes the box 2.3 s to reach the bottom of the ramp.

Video (6)
(a) A minimum force of magnitude 23 N must be exerted on the block to get it started moving up the incline.
(b) Once the block starts moving up the incline, the acceleration will have magnitude 1.4 m/s^2 and direction "parallel to, and *up*, the incline".

Video (7)
(a) A minimum force of magnitude 121 N must be exerted upward on the box to get it moving up the wall.
(b) Once the box starts moving up the wall, the acceleration will have magnitude 3.6 m/s^2, and direction "up".