

Acceleration, Force, and Work – Pre-AP Classwork

$$F=ma$$

$$a=d/t/t$$

$$W=Fd$$

Solve each problem. Write the formula, show plugging in the numbers, and circle your answer. Round to the nearest tenth for all problems on the entire worksheet.

Measurement	Unit
Force	
mass	
acceleration	
Work	
Distance	
time	

1. 10 m, 2 s

4. 3 kg, 6 m/s/s

7. 10 N, 8 m

2. 60 m, 4 s

5. 100 N, 10 kg

8. 0 J, 50 N

3. 0 m, 30 s

6. 30 N, 5 m/s/s

9. 36 N, 12 m

10. A 25 kg truck increases its speed 4 m/s², what is its force?

11. A ball travels 50 m in 5 s, what is its acceleration?

12. A jogger has a force of 200 N and runs 10 m, how much work did they do?

13. A boxer's hand (1 kg) accelerates at 600 m/s/s, how much force does the boxer hit with?

14. A fork lift moves 30 m carrying a 1,023 N box across the warehouse floor at a height of 2 m. How much work is done by the fork lift on the box? (Hint: The box stays at 2 m.)

Acceleration, Force, and Work – Pre-AP Homework

Solve each problem. Write the formula, show plugging in the numbers, and circle your answer. Round to the nearest tenth for all problems on the entire worksheet.

1. What is the acceleration of an object that travels from the 40 m mark to the 60 m mark in 5 s?

2. A girl (30 kg) and her bike (5 kg) travel down a hill and she applies 105 N of force to stop. How fast was she accelerating?

3. How much force is needed to run from half of the 400 m dash, if 1800 J of work is used?

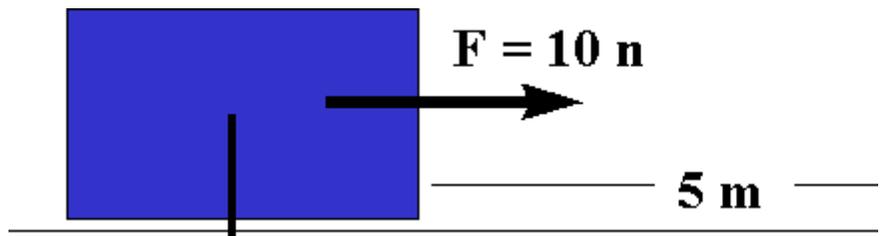
Solve for acceleration, force and work. Write the formulas, show plugging in the numbers, and circle your answers.

John Force and his dragster have a mass 500 kg. Starting from rest, John drives an eighth of a mile (200 m) in 2.5 s.

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| 4. Acceleration | 5. Force | 6. Work |
|-----------------|----------|---------|
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7. If you were getting paid by the amount joules you did every hour, why would pushing on a solid concrete wall not get you a lot of money?

 8. Explain how an object can accelerate if its speed never changes.

9. How much work would be done on the box to the right?



10. It takes 1500 J of work to move the box on the truck. Why does the ramp allow a person to use less force to move the box?

