

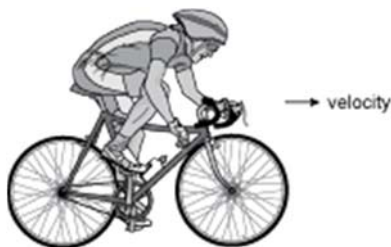
Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

- 1 Work out the value of acceleration for each bicycle. Use the formula in the box.

Draw an arrow in the space above each diagram to show the direction in which the acceleration is acting.

$$a = \frac{v - u}{t}$$

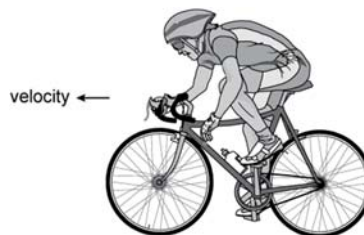
a



$$u = 8 \text{ m/s} \quad v = 12 \text{ m/s} \quad t = 4 \text{ s}$$

$$a = \text{_____ m/s}^2$$

b



$$u = 11 \text{ m/s} \quad v = 5 \text{ m/s} \quad t = 3 \text{ s}$$

$$a = \text{_____ m/s}^2$$

- 2 Calculate the following accelerations.

a At the start of a race, a sprinter accelerates from rest to 10 m/s in 2 seconds.

\_\_\_\_\_

b At a set of traffic lights, a lorry slows down from 30 m/s to 0 m/s in 20 seconds.

\_\_\_\_\_

- 3 You drop a tennis ball to the ground. What is the acceleration of the ball as it leaves your hand?

\_\_\_\_\_

- 4 A car accelerates from rest (0 m/s) to 50 m/s in 5 seconds. Its acceleration is 10 m/s<sup>2</sup>.

a Which of the formulae below do you need to use to calculate how far it travels while it is accelerating? Tick one box.

$t = \frac{v - u}{a}$

$x = \frac{v^2 - u^2}{2 \times a}$

$a = \frac{v^2 - u^2}{2 \times x}$

b Which piece of information in the question do you *not* need to answer the question? \_\_\_\_\_

c Calculate how far the car travels while it is accelerating.

distance  $x = \text{_____ metres}$