

## Acceleration Worksheet

The diagram illustrates the formula for acceleration,  $a = \frac{\Delta v}{t}$ . The variable  $a$  is labeled as 'acceleration ( $m/s^2$ )'. The numerator  $\Delta v$  is labeled as 'change in velocity ( $m/s$ )'. The denominator  $t$  is labeled as 'time ( $s$ )'. To the right, a red triangle mnemonic is shown. The top vertex contains  $\Delta v$ , the bottom-left vertex contains  $a$ , and the bottom-right vertex contains  $t$ .

1. A car accelerates from rest to 20 m/s in 12 seconds. Calculate the acceleration of the car.
2. A rocket has an acceleration of  $5.25 \text{ m/s}^2$  at take off. Assuming a constant rate of acceleration, calculate the speed of the rocket 3 seconds after takeoff.
3. A lorry has a velocity of 15 m/s. The lorry accelerates with an acceleration  $1.4 \text{ m/s}^2$  until it reaches a velocity of 18 m/s. Calculate how long the lorry was accelerating for.