Player A is running at a velocity of 4 m/s. Player B starts from rest and accelerates at .75 m/s2. If they start from a position 25m apart, how long is it before they collide?

Coordinate of player A:

$$x_A = 25 - 4t$$

where t - time

Coordinate of player B (he moves with uniform acceleration):

$$x_B = 0.75t^2$$

They will collide if:

$$x_A = x_B$$

Or:

$$0.75t^2 + 4t - 25 = 0$$

Roots of this quadratic equation:

$$t = \frac{-4 \pm \sqrt{4^2 - 4 * 0.75 * (-25)}}{2 * 0.75} = \frac{2}{3}(-4 \pm \sqrt{91})$$

We need only $t > 0$ roots, so:

$$t = \frac{2}{3}\left(-4 + \sqrt{91}\right) \cong 3.7\ s$$

Answer: 3.7 s