There were two versions of the exam.
Version A - In problem 1, the radius of the forest was 12 km.

1. 3.2272 hours.

2. $P$ is the point $(2.88235, 6.37903)$.

3. The orchard’s maximum possible total output is 7717.5 kg.

4. (a) $x = \frac{2}{5}$ is the only solution. (b) One function that works is $h(x) = \sqrt{10x} + \frac{-5}{1 + \sqrt{10}}$.

Version B - In problem 1, the radius of the forest was 9 km.

1. 2.0295 hours.

2. $P$ is the point $(4.653846, 9.96703)$.

3. The orchard’s maximum possible total output is 9680 kg.

4. (a) $x = -\frac{2}{7}$ is the only solution. (b) One function that works is $h(x) = \sqrt{8x} + \frac{-7}{1 + \sqrt{8}}$. 