# MATHEMATICS

## PAPER I

1. (*a*) 18.84
   (*b*) 18.75
   (*c*) XBD = 105°; BDX = 30°; BXD = 45°

2. (*a*) b = 2 (A/h) – a
   (*b*) cos A = $\frac{12}{13}$ sin (180° – A) = $\frac{8}{13}$

3. (*a*) y = 7
   (*b*) (i) 1.12in. (to 2 dp)
   (ii) 83.62° (to 2 dp)

4. (*a*) (2x – 1) (3x + 5)
   (*b*) x = 1.3 or x = – 0.3
   (*c*) $\frac{100\,(q-p)}{p}$

5. (*a*) 58.4
   (*b*) x = 5.625
   (*c*) BXC = 30°

6. 1.9in. (+ or – 0.1in.)

7. CAB = 67° (+ or – 0.1°)

8. 44.5%; 21 weeks.

9. (i) 66cm$^2$
   (ii) 6.6cm
   (iii) ABC = 36.9°; ACB = 30.5°; BAC = 112.6° (all to 1 dp)

10. (*a*) x = 1.64 or x = – 2.14
    (*b*) 8.9%

## PAPER II

1. (*a*) (3x + 5) (x – 4)
   (*b*) 59°F
   (*c*) y = – 2, x = 3

2. (*a*) x = 1.5 or x = –2
   (*b*) 104cm$^2$

3. (*a*) (ay + 3a) (2y – 5); (*b*) x = – 2 or x = $\frac{1}{3}$; (*c*) 24cm; 120cm$^2$

4. (*a*) 11.25 (*b*) 8.5

   (*c*) DAC = 58°; ACD = 58°; ADC = 64°

5. (*a*) $\frac{m(b+g)-nb}{g}$

   (*b*) 240

   (*c*) 4.76in.; 28.45in.

6. $y = 2x + \frac{80}{x}$; 16 in batch

7. 145mm

8. 2.7cm (+ or – 0.1cm)

9. 270mph

10. $\frac{3}{50}$ or 0.06in.

## PAPER III

1. (*a*) $y = 2$ or 4, $x = \frac{3}{2}$ or 2

   (*b*) 10.56 (to 2 dp)

2. 48.54 ft; 73.35° (to 2 dp)

3. (*a*) 1.72

   (*b*) 0.41 (both to 2 dp)

4. Area = $\frac{160}{3}$ or 53.33; Volume = $\frac{23552}{15}$ or 1570.13 (to 2 dp)

5. (i) 101.85 (to 2 dp)

   (ii) 3.51 (to 2 dp)

6. (*a*) x = 1.59 or x = –1.26

   (*b*) $x = 2$ or $\frac{2}{3}$, $y = 1$ or $-1\frac{2}{3}$

7. 1.22 (to 2 dp)

8. Angle C = 75.5°; XY = 3.57cm

9. 395mm

10. $\frac{BQ}{AP} = \frac{AP}{CR}$ because quadrilaterals BQAP and PARC are similar.