

01. 0625\_w13\_MS\_62 Q: 5

- (a) (i)  $x = 7.0$  cm / 70 mm unit needed, accept 6.95 to 7.0 cm [1]
- (ii)  $y = 3.3$  cm / 33 mm unit needed, c.a.o., accept 3.30 cm [1]
- (b) (i) 6.5(N) ignore unit [1]
- (ii)  $0.28$  N/cm<sup>2</sup> (0.0028 N/mm<sup>2</sup>, 2800 N/m<sup>2</sup> or Pa) e.c.f. unit needed, ignore significant figures [1]
- (c) any one from:  
 outline is larger than block / thickness of pencil line  
 zero error on forcemeter  
 precision with which the ruler can be read  
 precision of forcemeter / large gaps on scale  
 block not of uniform thickness/length [1]

**[Total: 5]**

02. 0625\_s12\_MS\_62 Q: 5

- (a) Trace: [1]  
 Normal at 90° in correct position [1]  
 N at 4 cm above AB and angle of incidence 20° [1]  
 a value 4.3 cm ± 1 mm correct answer only [1]
- (b) All correct lines drawn, thin and continuous [1]  
 a and b both with consistent, correct unit which matches figures [1]  
 b value 6.2 cm ± 3 mm correct answer only [1]  
 n value range 1.4 – 1.5 after rounding [1]  
 to 2 or 3 significant figures and no unit [1]
- (c) One from: [1]  
 Pins well spaced  
 Pins at least 5 cm apart  
 View bases of pins  
 Ensure pins vertical  
 Use thin lines  
 Sharp pencil  
 Use thin pins

**[Total: 9]**

03. 0625\_w12\_MS\_61 Q: 5

- (a) Measuring cylinder  
Tape measure  
Newtonmeter (spring balance)  
Electronic balance  
Manometer

1 mark each

[5]

- (b) (i) Viewing scale perpendicularly (owtte)

[1]

- (ii) Any one from:

- Moving lens back and forth  
Dark area (owtte)  
Object and lens at same height from bench  
Object lens and screen at right angles to bench

[1]

**[Total: 7]**



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