

**FOUNDATION TIER  
MINI PRACTICE EXAM 12**

**CALCULATOR ALLOWED  
20 MINUTES ALLOWED**

1.

Erica is providing snacks for a group of 30 people.  
Each person needs a sausage roll and a muffin.  
Sausage rolls are sold in packs of 6 that cost £1.40.  
Muffins are sold in packs of 4 that cost £1.60.

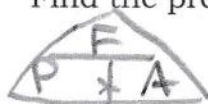
How much will it cost Erica to feed the group?

$$\begin{aligned} 30 \div 6 &= 5 \times \pounds 1.40 = \pounds 7 = \text{sausage rolls} \\ 30 \div 4 &= 7.5 = 8 \times \pounds 1.60 = \pounds 12.80 = \text{muffins} \\ 7 + 12.80 &= \underline{\underline{\pounds 19.80}} \end{aligned}$$

(4)

2.

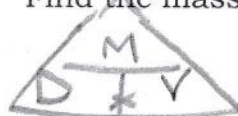
(a) A crate exerts a force of 1800 Newtons on an area of 1,200 cm<sup>2</sup>.  
Find the pressure exerted, in N/cm<sup>2</sup>.



$$P = \frac{1800}{1200} = \underline{\underline{1.5 \text{ N/cm}^2}}$$

(2)

(b) A block of wood has a density of 1.35 g/cm<sup>3</sup> and a volume of 5,000 cm<sup>3</sup>.  
Find the mass of the block of wood, in grams.



$$M = 1.35 \times 5000 = \underline{\underline{6,750 \text{ grams}}}$$

(2)

3.

A solution to the equation  $4x^3 - 7x = 10$  lies between 1 and 2.  
Use trial and improvement to find this solution to 1 decimal place.

$$\begin{aligned} 1.5 &\rightarrow 3 \quad \text{too small} \\ 1.6 &\rightarrow 5.184 \quad \text{too small} \\ 1.7 &\rightarrow 7.752 \quad \text{too small} \\ 1.8 &\rightarrow 10.728 \quad \text{too big} \\ 1.75 &\rightarrow 9.1875 \quad \text{too small} \end{aligned}$$

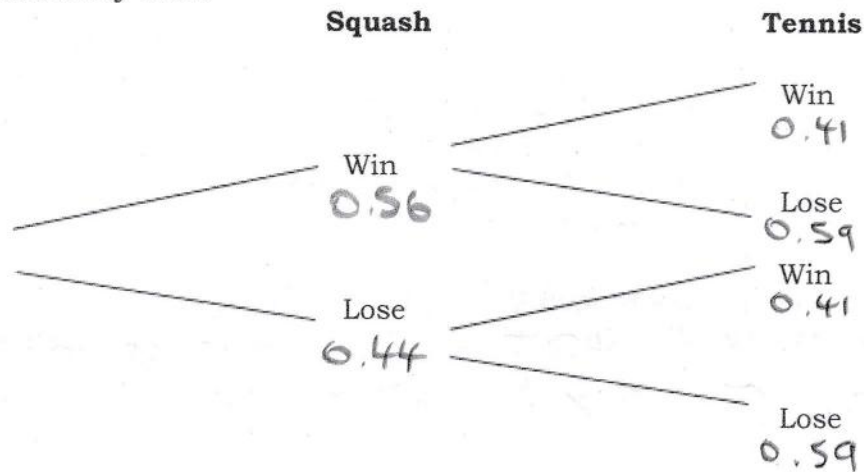
$$\underline{\underline{x = 1.8}}$$

(3)

4.

Francis is going to play his friend at squash and tennis.  
The probability that Francis wins at squash is 0.56.  
The probability that Francis wins at tennis is 0.41.

(a) Complete the probability tree.

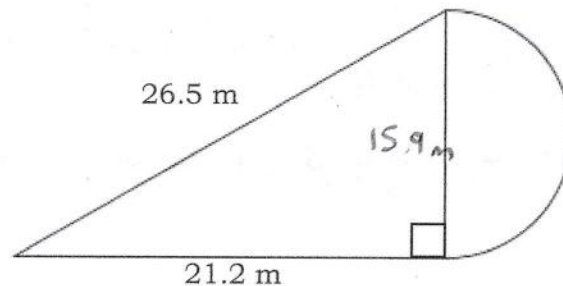


(b) Work out the probability that Francis wins in only one of the games.

$$0.56 \times 0.59 = 0.3304$$
$$0.44 \times 0.41 = 0.1804$$
$$+ = \underline{0.5108}$$

5.

The shape below is formed of a right-angled triangle and a semicircle.



Find the perimeter of the shape, to 1 decimal place.

$$26.5^2 = 702.25$$

$$21.2^2 = 449.44$$

$$- = 252.81$$

$$\sqrt{\quad} = 15.9 \text{ m}$$

$$\text{Circumference} = \pi \times 15.9 \div 2 = 24.9756 \dots$$

(of semi-circle)

$$\text{Perimeter} = 26.5 + 21.2 + 24.9756 \dots$$

$$= 72.675 \dots = \underline{72.7 \text{ m}}$$

(5)