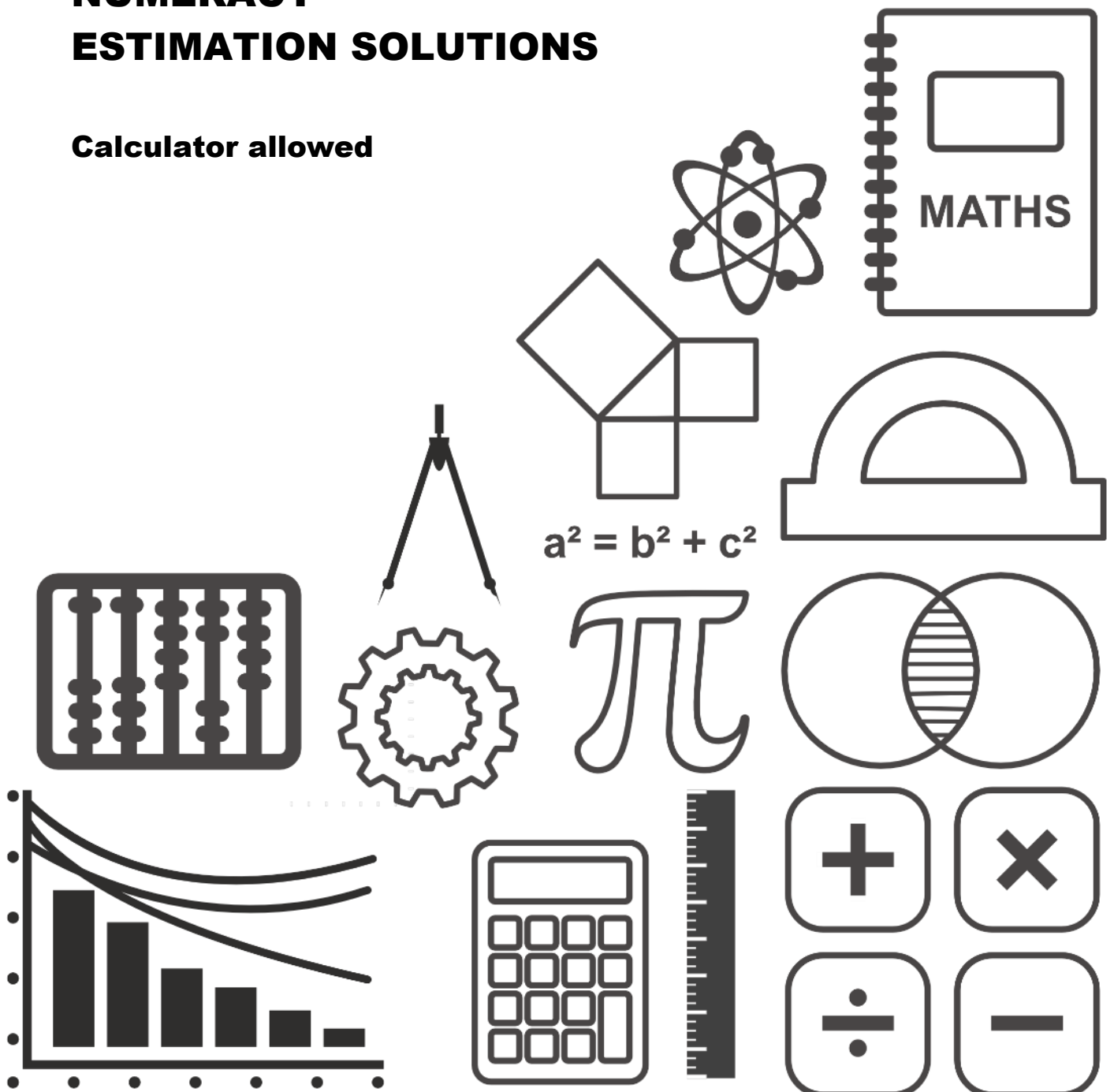


MATHS DIY

GCSE TOPIC BOOKLET NUMERACY ESTIMATION SOLUTIONS

Calculator allowed



1. The diagram below is a sketch of the Eiffel Tower.
 The sketch is drawn to scale.
 The Eiffel Tower is 324 metres tall.
 Visitors can climb up to the Level 2 viewing platform using the internal steps.

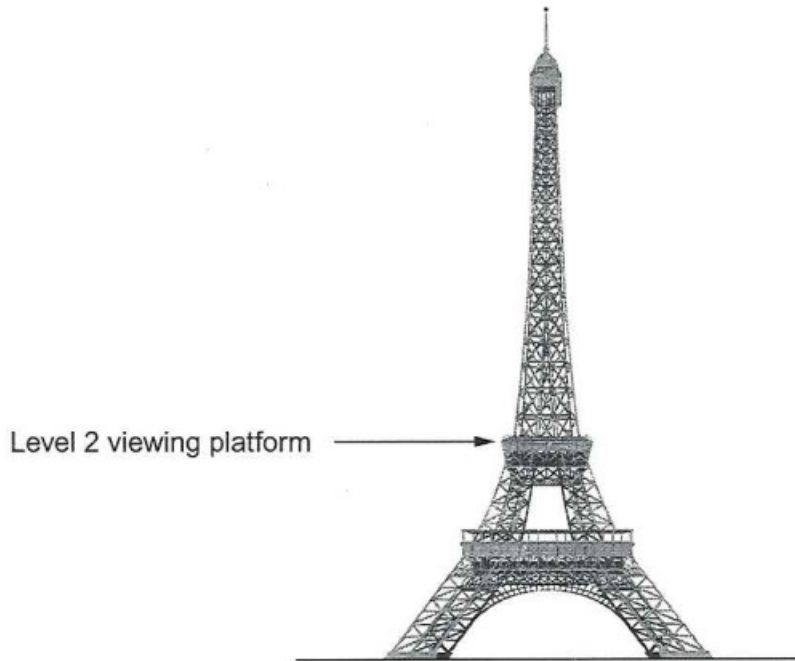


Diagram is drawn to scale

- (a) Which of the following is a reasonable estimate of the number of steps from the ground to the Level 2 viewing platform? [1]

150

650

2500

3500

6500

.....

.....

2. In October 2011, a charge of 5p for a carrier bag was introduced in Wales. Money raised from this charge is given to charity.



For the period 1st October 2011 to 31st January 2015, it was estimated that a total of between £16.8 million and £21.9 million was donated to charity. This is as a result of people buying 5p carrier bags.

- (a) Calculate an estimate of how much per month was given to charity between 1st October 2011 and 31st January 2015.

You must show all your working.

[4]

Need to calculate number of months first

1st Oct 11 → 1st Oct 14 → 31st Jan 15

3 years + 4 months

$3 \times 12 = 36 \text{ months} + 4 \text{ months}$

= 40 months

Estimate of 16.8 million → 21.9 million

Take the mean $(16.8 + 21.9) \div 2 = 19.35 \text{ million}$

19.35 million = 19,350,000

$\therefore \text{amount/month} = 19,350,000 \div 40$
= £483,750

(examiner accepts £400,000 - £550,000)
 depending on your workings/method

- (b) Over time, there has been a reduction in the use of 5p carrier bags. This is because more people are using their own bags.

What impact might this have had on the amount given to charity for the month of September 2014 when compared with September 2012? [1]

The amount given to charity will be LESS
IN 2014 than 2012 as the carrier bag
 consumption is less.