Past Papers Worksheet P2 Upper and Lower Bounds IGCSE Mathematics 0580



1. An equilateral triangle has side length 12cm, correct to the nearest centimetre.
   Find the lower bound and the upper bound of the perimeter of the triangle. [2]
   0580/22/O/N/18 Q11)

2. An equilateral triangle has sides of length 16.1cm, correct to the nearest millimetre.
   Find the lower and upper bounds of the perimeter of the triangle in cm. [2]
   0580/21/M/J/13 Q9)

3. The sides of a regular hexagon are 80mm, correct to the nearest millimetre.
   Calculate the lower bound of the perimeter of the hexagon.[2]
   0580/23/M/J/21 Q16)

4. (a) The length of the side of a square is 12cm, correct to the nearest centimetre.
   Calculate the upper bound for the perimeter of the square. [2]
   (b) Jo measures the length of a rope and records her measurement correct to the nearest ten centimetres. The upper bound for her measurement is 12.35m. Write down the measurement she records in meters. [1]
   0580/23/M/J/18 Q16)

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5. The side of a square is 6.3 cm, correct to the nearest millimetre.
   The lower bound of the perimeter of the square is u cm and the upper bound of the perimeter is v cm. Calculate the value of (a) u, [1] (b) v – u. [1]
   0580/23/O/N/10 Q12)

6. The area of a square is 42.5cm^2, correct to the nearest 0.5cm^2.
   Calculate the lower bound of the length of the side of the square. [2]
   0580/23/O/N/18 Q12)

P4

7. The base of a triangle is 9 cm correct to the nearest cm.
   The area of this triangle is 40cm^2 correct to the nearest 5cm^2.
   Calculate the upper bound for the perpendicular height of this triangle. [3]
   0580/22/M/J/16 Q13)

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8. Rice is sold in 75 gram packs and 120 gram packs.
   The masses of both packs are given correct to the nearest gram.
   Calculate the lower bound for the difference in mass between the two packs [2]
   0580/21/M/J/15 Q6)

9. One year ago Ahmed's height was 114cm. Today his height is 120cm.
   Both measurements are correct to the nearest centimetre.
   Work out the upper bound for the increase in Ahmed's height. [2] **0580/22/M/J/15 Q10)**

10. Neha has a piece of ribbon of length 23cm, correct to the nearest cm.
    From this ribbon she cuts off a piece with length 87mm, correct to the nearest mm.
    Work out the lower bound and the upper bound for the length of the remaining ribbon.
    Give your answer in centimetres. [3]
    0580/23/M/J/22 Q21)

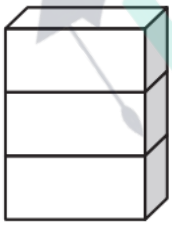
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11. Saafia has a barrel containing 6000 millilitres of oil, correct to the nearest 100ml.
    She uses the oil to fill bottles which each hold exactly 50ml.
    Calculate the upper bound for the number of bottles she can fill. [2]
    0580/21/O/N/18 Q8)

12. A large water bottle holds 25 litres of water correct to the nearest litre.
    A drinking glass holds 0.3 litres correct to the nearest 0.1 litre.
    Calculate the lower bound for the number of glasses of water which can be filled from the bottle. [3]
    0580/21/O/N/12 Q10)

13. The diagram shows three identical cuboids in a tower



    The height of one cuboid is 6.5 cm, correct to the nearest millimetre.
    Work out the upper bound of the height of the tower in centimetres. [2]
    0580/21/O/N/17 Q8)

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14. (i) A rod has length 2.9 m, correct to 1 decimal place.
    What is the upper bound for the length of the rod? [1]
    (ii) Will the rod fit completely in a box of diagonal length of 3.02m?
    Give a reason for your answer. [1]
    0580/42/M/J/11 Q2(c)

15. Ashraf takes 1500 steps to walk d **metres** from his home to the station.
    Each step is 90 centimetres correct to the nearest 10 cm.
    Find the lower bound and the upper bound for d. [3]
    0580/22/M/J/11 Q9)

16. Asma runs 22 kilometres, correct to the nearest kilometre.
    She takes $2\frac{1}{2}$ hours, correct to the nearest half hour.
    Calculate the upper bound of Asma's speed. [3]
    0580/41/O/N/14 Q2(d)

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17. The distance between two towns is 600 km, correct to the nearest 10km.
    A car takes 8 hours 40 minutes, correct to the nearest 10 minutes, to travel this distance.
    Calculate the lower bound for the average speed of the car in km/h.
    0580/21/M/J/21 Q20)

18. At a football match, there are 29800 people, correct to the nearest 100.
    (i) At the end of the football match, the people leave at a rate of 400 people per minute, correct to the nearest 50 people. Calculate the lower bound for the number of minutes it takes for all the people to leave. [3]
    (ii) At a cricket match there are 27500 people, correct to the nearest 100.
    Calculate the upper bound for the difference between the number of people at the football match and at the cricket match. [2]
    0580/42/M/J/22 Q6(d)

19. The formula v = u + at can be used to calculate the speed, v, of a car.
    u = 15, a = 2 and t = 8, each correct to the nearest integer.
    Calculate the upper bound of the speed v. [3]
    0580/43/O/N/13 Q8(b)

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20. $A = \frac{b \times h}{2}$

A = 10, correct to the nearest whole number.

h = 4, correct to the nearest whole number.

Work out the upper bound for the value of b. [3]

0580/23/M/J/19 Q16)

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Answers

1) 34.5 & 37.5	11) 121
2) 48.15cm, 48.45cm	12)70
3) 477mm	13) 19.65cm
4) (a)50 (b) 12.3	14) (i) 2.95 (ii) Yes and because 2.95 < 3.02
5) (a) 25 (b) 0.4	15) 1275 - 1425
6) 6.5	16) 10
7) 10	17) 68
8) 44	18) (i)70 (ii)2399 to 2400
9) 7	19) 36.75
10) 13.75 and 14.85	20) 6