

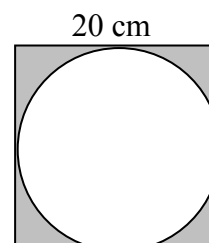
# REVISION SHEET 11

## CALCULATOR ALLOWED

### Examples.

1. A sequence of numbers is given by 3, 7, 11, 15, 19, .....  
Write down the rule for finding the  $n^{\text{th}}$  number in this pattern.
2. A circle is cut from a sheet of card as shown. The card left after the circle is cut out is wasted.

What percentage of each sheet of card is wasted?



3. Work out the value of  $\frac{3}{4} + \frac{2}{5} \times \left(\frac{1}{3}\right)^2$ , giving your answer as an exact fraction.
4. The results of 50 students in a test are given in the frequency diagram.

<b>mark</b>	30-39	40-49	50-59	60-69
<b>frequency</b>	7	14	20	9

Calculate an estimate of the mean mark of these students.

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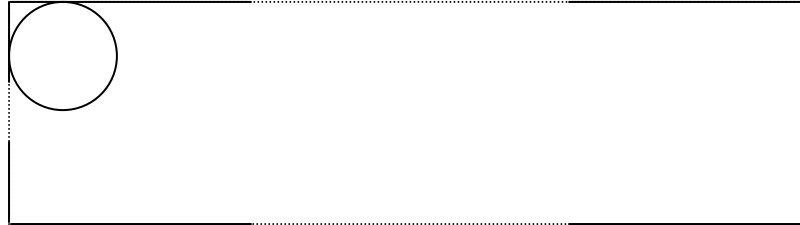
### Exercise.

1. a) Write down the next two numbers in the number pattern  
2, 5, 8, 11, 14, .....
- b) Write down in words the rule for finding the next number in the pattern from the one before it.
- c) Write down the rule for finding the  $n^{\text{th}}$  number in this pattern.
2. a) Write down the next two numbers in the number pattern  
6, 11, 16, 21, 26, .....
- b) Write down in words the rule for finding the next number in the pattern from the one before it.
- c) Write down the rule for finding the  $n^{\text{th}}$  number in this pattern.
3. Mr. and Mrs. Willis have just received their gas bill for the July to September quarter. The details of the bill are as follows:

Previous meter reading	74 203
Present meter reading	74 711
Cost per unit is 9 pence	
Fixed standing charge	£14.03.

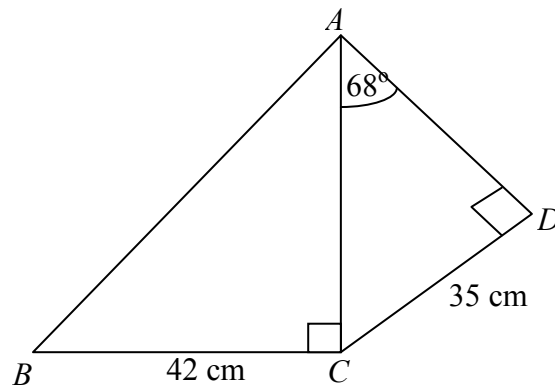
- a) Find the total cost of the gas used between July and September.
- b) V.A.T. of 8% is charged on gas bills. How much is Mr. and Mrs. Willis' gas bill including V.A.T?

4. Discs of diameter 6 cm are cut from a rectangular plastic sheet of length 60 cm by 42 cm.



- a) How many discs can be cut out?
- b) Calculate the total area of all the discs that can be cut from the sheet.
- c) The plastic left after the discs are cut out is wasted. What percentage of each sheet of plastic is wasted?
5. In the diagram below, angle  $ACB = 90^\circ$ ,  $ADC = 90^\circ$ ,  $BC = 42$  cm,  $CD = 35$  cm and angle  $CAD = 68^\circ$ .

Calculate the size of angle  $BAC$ .



6. Solve the following equations for  $x$ .

a)  $2(3x - 2) - 3(x - 1) = 2x + 4$

b)  $\frac{5x - 2}{4} - \frac{2x + 3}{3} = 2$

c)  $x^2 + 5x - 24 = 0$ .

7. Given  $a = \frac{1}{4}$ ,  $b = \frac{1}{3}$ ,  $c = \frac{2}{7}$  and  $d = \frac{5}{8}$ , find **as fractions**:

a)  $bc + ad$       b)  $cd - ab$       c)  $\frac{a}{bc + d}$       d)  $\frac{c + d}{a + cd}$ .

8. A biologist measures the heights of 100 shrubs to the nearest cm. The following table shows her results.

Height (to nearest cm)	1 to 5	6 to 10	11 to 15	16 to 20	21 to 30
Frequency	22	9	20	19	30

- a) Calculate an estimate of the mean height of the trees in the sample.
- b) On graph paper, draw a **frequency polygon** to show the biologist's results.

ANSWERS.

1. a) 17, 20      b) add 3 to the previous number  
c)  $n^{\text{th}}$  number =  $3n - 1$ .
2. a) 31, 36      b) add 5 to the previous number  
c)  $n^{\text{th}}$  number =  $5n + 1$ .
3. a) £59.75      b) £64.53.
4. a) 70      b)  $1979 \cdot 203372 \text{ cm}^2$   
c) 21.46%.
5.  $48.0514634^\circ$ .
6. a)  $x = 5$       b)  $x = 6$       c)  $x = -8$  or  $x = 3$ .
7. a)  $\frac{169}{672}$       b)  $\frac{2}{21}$       c)  $\frac{42}{121}$       d)  $2\frac{1}{8}$ .
8. a) 14.9 cm.