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Secondary 1 Math EOY Revision

SEC 2 MATH

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Answer **all** the questions.

1. The first four terms of a sequence are $-4, -1, 2, 5$.

   a) Write down the next term in the sequence.

   Answer_____ [1]

   b) Write down an expression for the n^{th} term.

   Answer_____ [2]

   c) Hence, find the 25^{th} term in the sequence.

   Answer_____ [1]

   d) Explain why 255 is not a term of the sequence.

   Answer _____

   _____

   _____

   _____ [2]

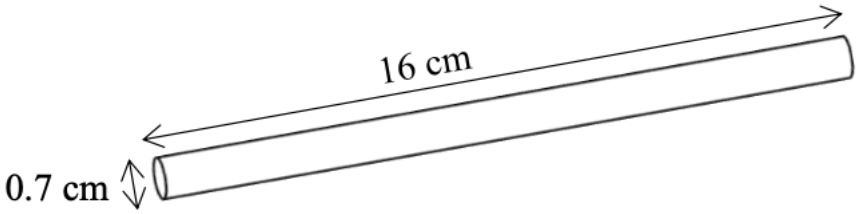
2. a) Factorise $4p - 24pq - 16pr$ completely.

Answer_____ [1]

b) Simplify the expression $\frac{2(2m+n)}{3} + \frac{(3m-5n)}{5}$.

Answer_____ [3]

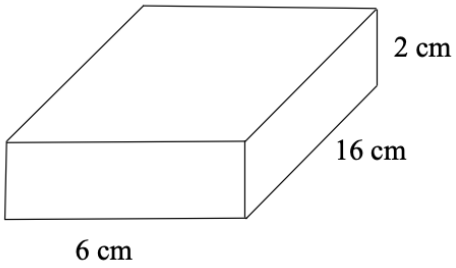
3. The diagram below shows an unsharpened pencil. It is cylindrical in shape. The diameter and length of the pencil are 0.7 cm and 16 cm respectively.



a) Calculate the volume of the pencil, leaving your answer in terms of π.

Answer_____cm^3 [2]

b) A number of this pencil can fit exactly into a pencil case with dimensions as given in the diagram below.



i) Find the maximum number of pencils that can fit into the pencil case.

Answer_____ [1]

ii) Hence, find the percentage of empty space in the box.

Answer_____% [2]

4. Countries in the world follow different time zones. There are 24 main time zones in the world. The local time in Rovaniemi is -5 hours relative to the local time in Singapore. The local time in Christchurch is $+4$ hours relative to the local time in Singapore.

a) When the time in Singapore is 6 am, find the local time in

i) Rovaniemi

Answer_____ [1]

ii) Christchurch

Answer_____ [1]

b) When the local time in Rovaniemi on 2 September is 10 pm, what is the time and date in Singapore?

Answer_____ [1]

5. Ms Tan used a tape of 52m to cordon off a rectangular plot of land to plant vegetables. (Dimensions are integers.)

a) What would be the largest possible area she could have?

Answer_____m^2 [1]

b) State the dimensions of this largest possible area.

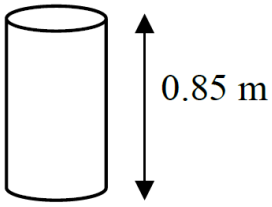
Answer Length = _____ m, Breadth = _____m [1]

c) Ms Tan bought more tapes and the shape of the plot of land was later altered from a rectangle to a circle. With the area of plot remaining the same, find the radius of the circle.

Answer_____m [2]

6. In a factory, liquid waste is poured into cylindrical drums. The volume of the cylindrical drum is 0.255 m^3 and its height is 0.85 m.

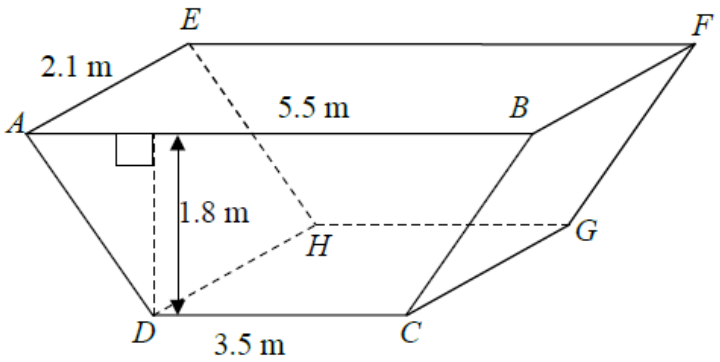
a) Calculate the radius of the cylindrical drum.



Answer_____m [2]

When full, the drums are emptied into a tank as shown in the diagram below. Both the bottom of the tank, $DCGH$ and its top, $ABFE$, are rectangles.
The vertical sides $ABCD$ and $EFGH$ are identical trapeziums.

DC // AB, EF // HG, $AB = EF = 5.5$ m, $DC = HG = 3.5$ m, $AE = BF = CG = DH = 2.1$m and the perpendicular height of the tank is 1.8 m



b) Calculate
   i) the area of the trapezium $ABCD$.

Answer_____m^2 [1]

ii) the volume of the tank.

Answer_____m^3 [1]

c) How many full drums of waste can be emptied into the tank?

Answer_____ [2]