

B

Name _____

/5/MATSD/SP1/ENG/TZ1/XX

8. Daniela is going for a holiday to South America. She flies from the US to Argentina stopping in Peru on the way.

In Peru she exchanges 85 United States dollars (USD) for Peruvian nuevo sol (PEN). The exchange rate is $1 \text{ USD} = 3.25 \text{ PEN}$ and a flat fee of 5 USD commission is charged.

(a) Calculate the amount of PEN she receives. [3]

At the end of Daniela's holiday she has 370 Argentinean peso (ARS). She converts this back to USD at a bank that charges a 4% commission on the exchange. The exchange rate is $1 \text{ USD} = 9.60 \text{ ARS}$.

(b) Calculate the amount of USD she receives. [3]

Working:

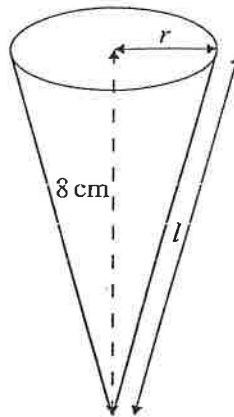
Answers:

(a)

(b)



9. A type of candy is packaged in a right circular cone that has volume 100cm^3 and vertical height 8cm .



- (a) Find the radius, r , of the circular base of the cone. [2]
- (b) Find the slant height, l , of the cone. [2]
- (c) Find the curved surface area of the cone. [2]

Working:

Answers:

- (a)
- (b)
- (c)



10. The first three terms of a geometric sequence are $u_1 = 486$, $u_2 = 162$, $u_3 = 54$.

- (a) Find the value of r , the common ratio of the sequence. [2]
- (b) Find the value of n for which $u_n = 2$. [2]
- (c) Find the sum of the first 30 terms of the sequence. [2]

Working:

Answers:

- (a)
- (b)
- (c)



11. The equation of line L_1 is $y = -\frac{2}{3}x - 2$.

(a) Write down the gradient of L_1 . [1]

Point P lies on L_1 and has x -coordinate -6 .

(b) Find the y -coordinate of P. [2]

The line L_2 is perpendicular to L_1 and intersects L_1 when $x = -6$.

(c) Determine the equation of L_2 . Give your answer in the form $ax + by + d = 0$, where a , b and d are integers. [3]

Working:

Answers:

- (a)
- (b)
- (c)



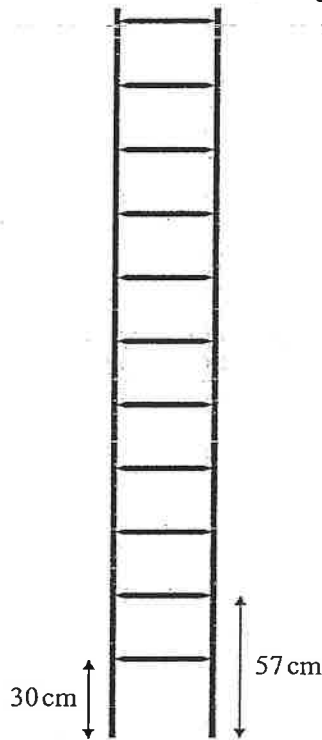
5.

The company Snakezen's Ladders makes ladders of different lengths. All the ladders that the company makes have the same design such that:

the first rung is 30 cm from the base of the ladder,
the second rung is 57 cm from the base of the ladder,
the distance between the first and second rung is equal to the distance between all adjacent rungs on the ladder.

The ladder in the diagram was made by this company and has eleven equally spaced rungs.

diagram not to scale



- (a) Find the distance from the base of this ladder to the top rung. [3]

The company also makes a ladder that is 1050 cm long.

- (b) Find the maximum number of rungs in this 1050 cm long ladder. [3]

(This question continues on the following page)

