

9.30 - Questions Handout #s 1 - 11

Communicate the Ideas

- Frankie measures a stack of cups to be 20.5 cm high. The number of cups is modelled using the formula $h = 7 + 1.5c$.
 - Describe the steps to solve the equation.
 - If the formula is rewritten as $1.5c + 7 = h$, will your steps change? Explain.
- Look at the bookstore flyer. Which statement best defines the variable? Why?
 - Let x represent the number of books.
 - Let x represent the cost of one book.
 - Let x represent the cost of five books.



Check Your Understanding

Practise

For help with questions 3 to 5, refer to Example 1.

- Look at the pattern of marbles.



- Copy and complete the table.

Diagram	Number of Marbles	Pattern
1	$5 = 2 + 3$	$2 + 3 \times 1$
2		
3		
4		

- Write an equation that models the pattern.
- How many marbles are in diagram 5?
- What diagram in the pattern uses 41 marbles?

- Leo measures the heights of stacks of one, two, and three baskets to be 17 cm, 19 cm, and 21 cm.

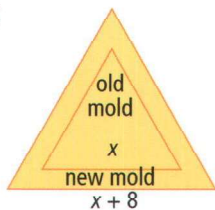


- Describe the pattern.
 - Predict the height of the next three stacks of baskets.
 - Develop a formula for the height of b baskets.
 - How many baskets are in a stack that is 65 cm high?
- Orly buys movie tickets over the telephone. Tickets cost \$9.25 each, plus a \$3 service charge for the order.
 - What is the price of ordering one ticket? two tickets? three tickets?
 - Write a formula to model the price of ordering tickets by telephone.
 - Orly pays \$58.50. How many movie tickets does she buy?

For help with questions 6 and 7, refer to Example 2.

6. Kareem is designing a mouse pad to use with his computer. He has a design of a square mouse pad with side length 16 cm. He wants to design a mouse pad with a perimeter of 84 cm. By how much does Kareem have to increase each side length?

7. Wei designs floor tiles using a mould of an equilateral triangle. He increases the length of each side of the triangle mould by 8 cm. The perimeter of Wei's new mould is 93 cm. What was the original perimeter of his mould?

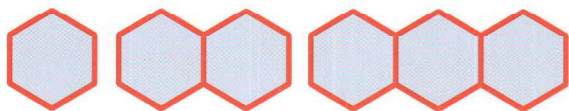


Apply

8. Solve each equation using the variables given. What might the variables represent? Justify your answer.

- a) $C = 160 + 160t$. Substitute $C = 171.20$.
 b) $v = d \div t$. Substitute $v = 52.5$ and $t = 4$.
 c) $e = 30h + 25$. Substitute $h = 8\frac{1}{2}$.

9. Filomena decorates the bottom of her jeans. She sews one piece of ribbon along each side of the regular hexagons.



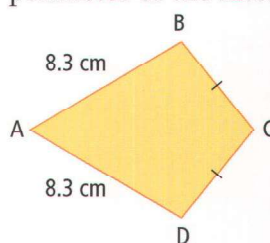
The pattern can be modelled using the formula $r = 1 + 5h$. In the formula, r represents the number of pieces of ribbon and h represents the number of hexagons.

- a) Filomena has 96 pieces of ribbon. How many hexagons can she sew together?
 b) Filomena has 41 pieces of ribbon. How many hexagons can she sew together?

10. Anton developed the formula $m = 1 + 2d$ to model a pattern of marble diagrams.
- a) Describe what the variables could represent.
 b) What might the fifth diagram look like?



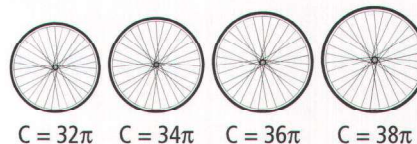
11. a) Develop a formula for the perimeter of the kite.



- b) If the perimeter is 31.4 cm, what is the length of side CD?
 c) If the perimeter is 49.8 cm, what is the relationship among the side lengths? Model your answer using an equation.
 d) Design your own kite. Make sure that sides BC and CD are the same length.

Extend

12. Long-stem roses cost \$4.25 each. Delivery costs \$10. Do not include tax. How many roses can be delivered for \$50? Will there be any money left over?
13. Mahendra measures the circumference of each wheel.



- a) Copy and complete the table for the wheels.

Wheel	Circumference, C (cm)	Pattern
1	32π	$2\pi(15 + 1)$
2		

- b) The circumference of a wheel is 60π cm. Use an equation to find the wheel number.