PROBLEM SOLVING INVOLVING ALGEBRAIC EXPRESSIONS

1. The age of Azhar's mother was four times the age of Azhar last year. If Azhar is *n* years old now, state the age of Azhar's mother seven years later in terms of *n*.

   Azhar's mother's age last year = x Azhar's age

   = x *n*

   =

   Azhar's mother's age seven years later = + 7

2. Aina makes a cubic model from a manila card. If the volume of the cube is $(2 + 3p)^3$ cm^3, find the total surface area of the cube in terms of *p*.

   Let's refresh a bit : Do you remember Chapter 3? When we say that the volume of a cube is 27, how did we find the length of a cube?

   That's right, we used cube root.

   Length of a side of a cube with volume 27 = $\sqrt[3]{27} = \sqrt[3]{3^3} = 3$

   Back to Question 2 : Length of a side of a cube = $\sqrt[3]{(2 + 3p)^3} =$

   Surface area of one face of a cube = $(2 + 3p) \times (\qquad) = (2 + 3p)^2$

   Number of surfaces a cube has =

   Total surface area of the cube in terms of *p*

   = Surface area of one cube x Number of surfaces in a cube

   = x

   = 6 ( )^2 cm^2

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3. The area of a rectangle is $12a^3b^2$. Express the length of the rectangle in terms of *ab*.

$3ab$

Length of rectangle x Width of rectangle = Area of rectangle

Length of rectangle x = $12a^3b^2$ [HINT : look at the diagram for width]

Length of rectangle $= \dfrac{12a\ b}{3ab}$

$= \dfrac{\times\ \times\ \times\ \times\ \times}{\times\ \times}$

$= 4a\ b$

4. Zuriana's mother gives a certain amount of money to Zuriana to buy satay and otak-otak. Zuriana buys *m* sticks of satay which costs RM *x* for 5 sticks and receives a balance of 80 cents. Then, she buys *2m* pieces of otak-otak which costs RM *y* per piece and receives a balance of 60 cents.

(a) Write an algebraic expression for the total amount of money received by Zuriana.

Type of Food	Number of Sticks / Pieces	Price per stick (RM) / Price per piece (RM)	Total price (RM)
Satay		$\frac{x}{5}$	$\frac{x}{5} \times \quad = \frac{mx}{5}$
Otak-otak			$2m \times y =$

Total amount of money received by Zuriana

= Total price of Satay + Balance + Total price of Otak-otak + Balance

$= \dfrac{mx}{5} + \qquad + 2my +$

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$$= \frac{mx}{5} + 2my + 1.40$$

(b) If m = 10, x = 4 and y = 12, find the total amount of money that Zuriana received from her mother.

Total amount of money Zuriana received

$$= \frac{mx}{5} + 2my + 1.40$$

$$= \frac{(\quad)(\quad)}{5} + 2(\quad)(\quad) + 1.40$$

$$= RM$$

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