

## Numeracy Year 9 – Week 5: Algebra

### STUDENT WORKSHEET

#### Focus of the week

Generalising linear relationships in words or symbols

#### Question 1

Mathew has \$200. He then saves \$40 each week.

Let  $n$  represent the number of weeks.

The rule for the number of dollars that Mathew has after  $n$  weeks is  $200 + 40n$ .

Nerida has \$500. She then **spends** \$20 each week.

Let  $n$  represent the number of weeks.

What is the rule for the number of dollars that Nerida has after  $n$  weeks?

Write the answer on the line.



\_\_\_\_\_

#### Question 2

The cooking time for a beef roast is 20 minutes plus 30 minutes per kilogram.

If  $M$  is the mass of the roast in kilograms, the total cooking time (in minutes) is

- $50 \times M$
- $30 \times M + 20$
- $20 \times M + 30$
- $30 \times (M + 20)$

Shade one bubble.

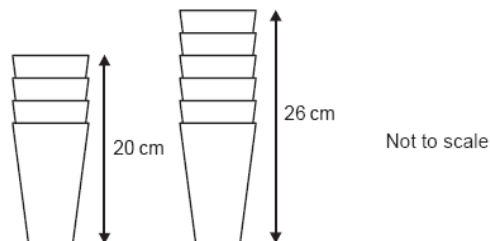


#### Question 3

A stack of 4 cups is 20 cm tall.

A stack of 6 cups is 26 cm tall.

Shade one bubble.



Which rule can be used to work out the height, in centimetres, of a stack of  $n$  cups?

$6n - 10$

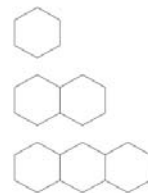
$6n - 4$

$3n + 11$

$3n + 8$

#### Challenge Question

The diagram shows the first three figures of a sequence of figures made with toothpicks of equal length.



How many toothpicks would be needed to make the  $n^{\text{th}}$  figure?

Give your answer as a rule in terms of  $n$ . \_\_\_\_\_