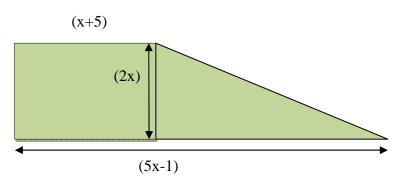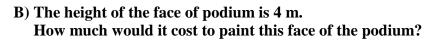**/100**

1 Jack Splat, is a contractor hired to paint the 2010 Olympic podium.
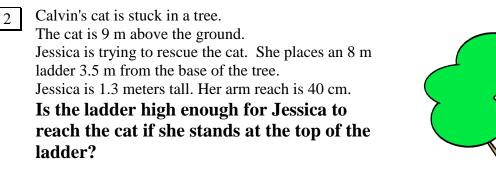The face of the podium is in the shape of a trapezoid and he is required to paint only the shaded
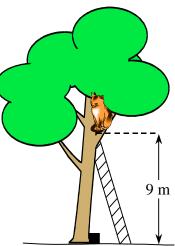area (as shown). The paint at RENO DEPOT costs $18 per can and each one covers 16 m^2.

A) What is the algebraic expression for the area of the face podium?

(x+5)

(2x)

(5x-1)

B) The height of the face of podium is 4 m.
How much would it cost to paint this face of the podium?

/6

2 Calvin's cat is stuck in a tree.
The cat is 9 m above the ground.
Jessica is trying to rescue the cat. She places an 8 m
ladder 3.5 m from the base of the tree.
Jessica is 1.3 meters tall. Her arm reach is 40 cm.
Is the ladder high enough for Jessica to
reach the cat if she stands at the top of the
ladder?

9 m

/4

3 The joker is running away from batman and must do one full lap around the outside of the city, (shown in aerial view) to escape batman's clutches.
What algebraic expression represents the distance that the joker must run to escape batman? (ie. Perimeter)

9 Units

$6x + 29$

$10x + 30$

$10x + 54$

/5

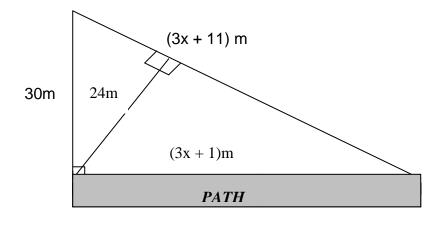**4** Malcolm has to put grass on the rectangular section of a BMX track (represented by the shaded region). He is told that the perimeter of the triangular section (the white part) is $5x^2 + 3x - 5$.

A) What is the algebraic expression for the area of the rectangle?

E

$2x^2$ $3x^2-3$

A   D

$x+2$

B   C

B) Malcolm measures the width of the grass section and finds out it is 20m.
He will hold a race around the outside of the BMX track, following the route AEDCBA.
He plans to run 2 races. The short race will be 3418 m long and the long race will be 6836 m long.
If a person does 2 laps, which race did they compete in? (the short or long race)

/5

5 The mayor of Aylmer recently built a new triangular courtyard. Now she wants to put a path along the bottom edge of the courtyard.

What is the numerical value of x?

(3x + 11) m

30m   24m

(3x + 1)m

PATH

/5

6 Mrs. Botros asked the class to simplify the following expression: $2p^2m^2 - (pm - 5)^2$

Debbie and Cindy placed their answers on the board. Each student's solution is given below.

DEBBIE'S ANSWER:	CINDY'S ANSWER:
$2p^2m^2 - (pm - 5)^2$ $= 2p^2m^2 - (p^2m^2 - 25)$ $= p^2m^2 + 25$	$2p^2m^2 - (pm - 5)^2$ $= 2p^2m^2 - (p^2m^2 - 10pm + 25)$ $= p^2m^2 - 10pm + 25$

Who is correct? Justify your answer.

/2

7 A stone is thrown from the top of a 25m cliff. It stays in the air for a few seconds before it falls into the ocean below. The path of the stone is represented by the polynomial and graph below:

$H(t) = -5t^2 + 20t + 25$

How high was the stone 1.5 seconds before it landed in the ocean?

/3

8 | Jan, Mike and Tom have struck it RICH!! They each have won different amounts from the local lottery.

- **Mike gets paid monthly.** (for a total of 12 payments a year)
- **Jan gets paid BI-WEEKLY and her pay is double Mike's MONTHLY pay, less $1500.** (she gets a total of 26 payments a year)
- **Tom's weekly pay is the sum of Jan's bi-weekly pay and Mike's monthly pay, less $3500.** (he gets a total of 52 payments a year)

If you consider their yearly winnings, the sum of their total winnings is 10 times Mike's yearly winnings, plus $1000.

Now that they have come into this money, all three have decided what they are going to keep putting it away until they have saved up enough to buy particular items.

- **Mike is going to save for his daughter's tuition to medical school.**
- **Jan wants to buy a house, which costs double medical school plus $50 000.**
- **Tom wants to buy a party boat which will be at most $400 000.**

The sum of Jan's and Mike's purchases is $50 000 less than the party boat

How long will each person have to save up for each item if they are only to use their lottery winnings?