For Examiner's Use

1 Write down the next two prime numbers after 47.

Answer 53 and 59 [2]

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2 Simplify $\frac{x}{3} + \frac{5x}{9} - \frac{5x}{18}$.

$\frac{x \times 6}{3 \times 6} + \frac{5x \times 2}{9 \times 2} - \frac{5x}{18}$

$= \frac{6x}{18} + \frac{10x}{18} - \frac{5x}{18}$

$= \frac{6x + 10x - 5x}{18} = \frac{11x}{18}$

Answer $\frac{11x}{18}$ [2]

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3 Lin scored 18 marks in a test and Jon scored 12 marks.
Calculate Lin's mark as a percentage of Jon's mark.

$\frac{18}{12} \times 100\% = 150\%$

Answer 150% % [2]

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4 **(a)** The formula for the nth term of the sequence

$$1,\ 5,\ 14,\ 30,\ 55,\ 91,\ \ldots \quad \text{is} \quad \frac{n(n+1)(2n+1)}{6}.$$

Find the 20th term.

$\frac{20(20+1)(2(20)+1)}{6}$

$= \frac{20(21)(41)}{6}$

$= 2870$

Answer(a) 2870 [1]

(b) The nth term of the sequence $\overset{n}{10},\ \overset{n+1}{17},\ \overset{n+2}{26},\ 37,\ 50,\ \ldots$ is $(n+2)^2 + 1$.

Write down the formula for the nth term of the sequence $17,\ 26,\ 37,\ 50,\ 65,\ \ldots$ $\overset{n+1}{}\ \overset{n+2}{}$

$((n+1)+2)^2+1$

$= (n+3)^2+1$

Answer(b) $(n+3)^2+1$ [1]