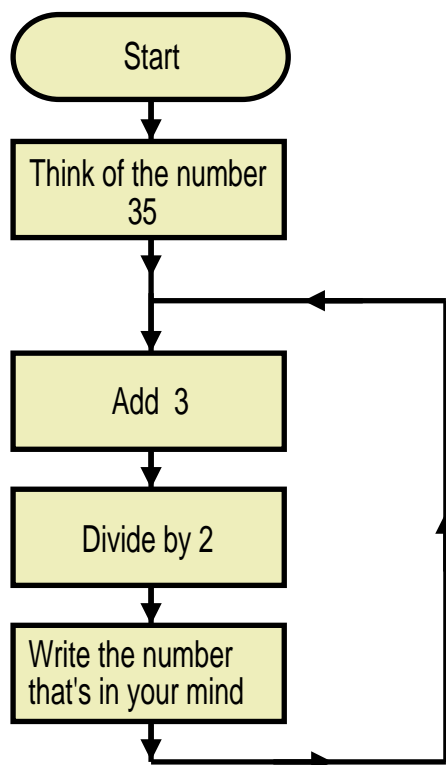


7.1 Revision

Non-Calculator
Marks Available : 60

Question 1

A number sequence, U , is described by the following flowchart,



Complete this table to show the first six terms in sequence U

U_1	U_2	U_3	U_4	U_5	U_6
35					

[7 marks]

Question 2

Simplify,

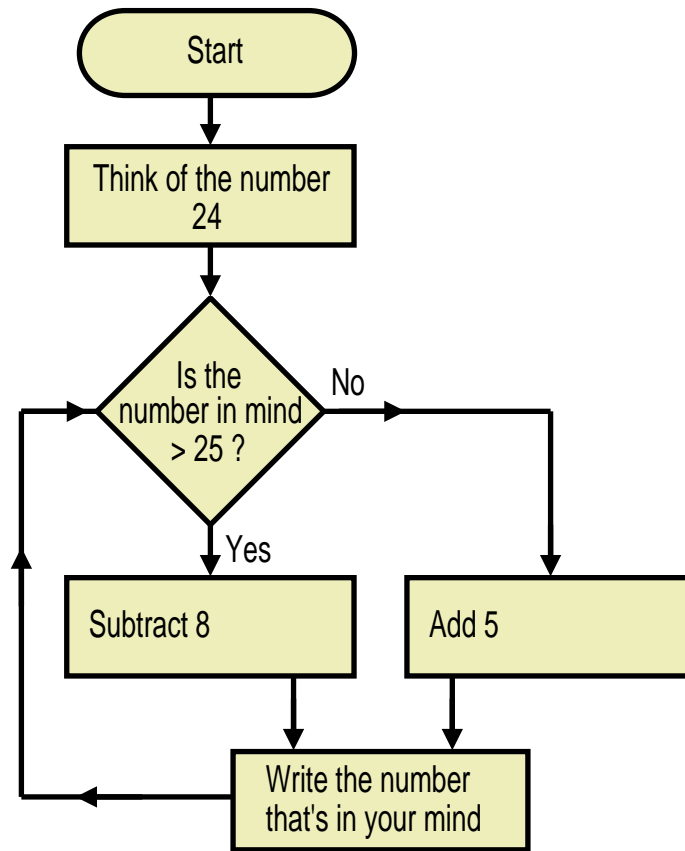
(i) $9 \times \left(\frac{5}{9} + 3 \right)$

(ii) $\left(8 + \frac{3}{4} \right) \times 4$

[4 marks]

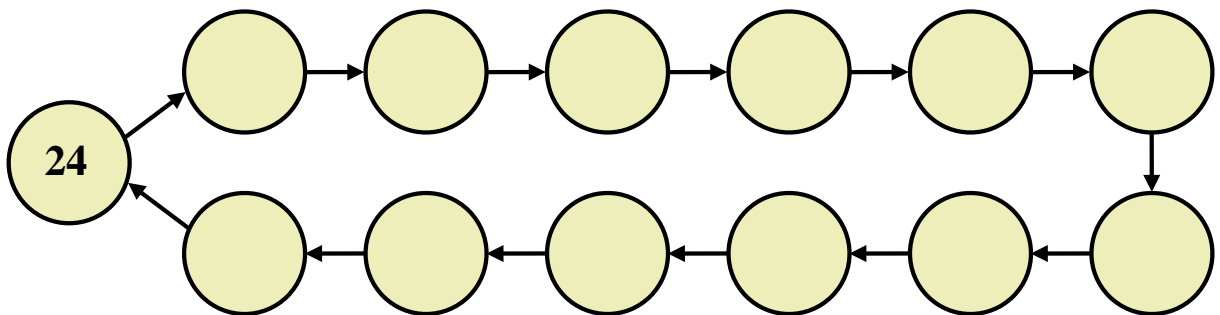
Question 3

A number sequence, K , is described by the following flowchart,



The flowchart generates a loop of numbers.

On the following diagram write out the numbers that are in the loop.



[8 marks]

Question 4

First expand the brackets, then simplify,

(i) $\left(3 + \frac{2}{7}\right) \times 7$

[2 marks]

(ii) $\frac{\left(3 + \frac{2}{7}\right)}{1} \times \frac{7}{7}$

[2 marks]

Question 5

A sequence of numbers has the iterative rule

$$A_1 = \frac{1}{9} \quad A_{n+1} = \frac{3}{2} A_n$$

Use the space below to work out the first six terms of this iterative sequence.

Simplify fractions where possible.

Put your answers in the table.

A_1	A_2	A_3	A_4	A_5	A_6

[7 marks]

Question 6

Simplify,

(i) $\frac{\left(\frac{3}{11} + 2\right)}{6} \times \frac{11}{11}$

[2 marks]

(ii) $\frac{\left(5 + \frac{7}{9}\right)}{7}$

[2 marks]

(iii) $\frac{\left(4 + \frac{3}{7}\right)}{7}$

[2 marks]

Question 7

- (i) The following sum has an answer that is a rational number.

That is, a number in the form $\frac{p}{q}$ for integer p and q with $q \neq 0$

Determine what that rational number is.

$$\frac{\left(4 - \frac{3}{2}\right)}{2}$$

[2 marks]

- (ii) Consider the iteration, $B_1 = 1$, $B_{n+1} = \frac{4 - B_n}{2}$

Use the space below to work out the first six terms of this iterative sequence and put your answers in the table towards the bottom of the page.

B_1	B_2	B_3	B_4	B_5	B_6

[7 marks]

Question 8

Simplify,

(i) $\frac{1}{\left(\frac{5}{3} + 1\right)} \times \frac{3}{3}$

[2 marks]

(ii) $\frac{4}{\left(\frac{2}{7} + 3\right)}$

[2 marks]

(iii) $\frac{2}{\left(\frac{7}{10} + 5\right)}$

[2 marks]

Question 9

(i) The following sum has an answer that is a rational number.

That is, a number in the form $\frac{p}{q}$ for integer p and q with $q \neq 0$

Determine what that rational number is.

$$\frac{1}{\left(\frac{2}{5} + 1\right)}$$

[2 marks]

(ii) Consider the iteration, $Z_1 = 4$, $Z_{n+1} = \frac{2}{Z_n + 1}$

Use the space below to work out the first six terms of this iterative sequence and put your answers in the table towards the bottom of the page.

Z_1	Z_2	Z_3	Z_4	Z_5	Z_6

[7 marks]