Recurring Decimals to Fractions

Q1.

Prove that the recurring decimal $0.4\dot{3}$ has the value $\dfrac{13}{30}$

(Total for question = 2 marks)

Q2.

Express the recurring decimal $0.2\dot{8}\dot{1}$ as a fraction in its simplest form.

. . . .

(Total for Question is 3 marks)

Recurring Decimals to Fractions

Q1.

Prove that the recurring decimal $0.4\dot{3}$ has the value $\frac{13}{30}$

Let $x = 0.43333$

$10x = 4.333\dot{3}$ ①

$100x = 43.333\dot{3}$ ②

(Total for question = 2 marks)

② - ① $90x = 39$

$x = \frac{39}{90} = \frac{13}{30}$

$\therefore 0.4\dot{3} = \frac{13}{30}$

Q2.

Express the recurring decimal $0.2\dot{8}\dot{1}$ as a fraction in its simplest form.

Let $x = 0.28\dot{1}8\dot{1}$

$10x = 2.81\dot{8}\dot{1}$ ①

$1000x = 281.81\dot{8}\dot{1}$ ②

② - ① $990x = 279$

. . . .

$x = \frac{279}{990} = \frac{93}{330} = \frac{31}{110}$

(Total for Question is 3 marks)

$\therefore 0.2\dot{8}\dot{1} = \frac{31}{110}$