Outcome 1 – Changing between Fractions & Recurring Decimals

Bronze examples

Examples... **Do the division**

Express the following as recurring decimals...

$\frac{1}{9} = 0\dot{1}$

$9\overline{)1\,^{1}0\,^{1}0\,^{1}0\,^{1}0\,^{1}}$ $0{\cdot}1\,1\,1\,1\ldots$

$\frac{5}{6} = 0\dot{8}\dot{3}$

$6\overline{)5\,^{5}0\,^{2}0\,^{2}0\,^{2}0\,^{2}}$ $0{\cdot}8\,3\,3\,3\ldots$

Silver examples

Examples... **Make an equation**

Express the following as fractions...

$0\dot{6}\dot{9} = \frac{23}{33}$

$x = 0{\cdot}696969\ldots$

$100x = 69{\cdot}696969\ldots$

$x = 0{\cdot}372372\ldots$

$1000x = 372{\cdot}372372\ldots$

$99x = 69 \quad x = \frac{69}{99}$

$999x = 372 \quad x = \frac{372}{999}$

$0\dot{3}7\dot{2} = \frac{124}{333}$

Gold examples

Examples... **Make an equation**

Express the following as fractions...

$0{\cdot}9\dot{5} = \frac{43}{45}$

$x = 0{\cdot}955555\ldots$

$10x = 9{\cdot}555555\ldots$

$100x = 95{\cdot}55555\ldots$

$x = 0{\cdot}47979\ldots$

$10x = 4{\cdot}797979\ldots$

$1000x = 479{\cdot}797979\ldots$

$90x = 86 \quad x = \frac{86}{90}$

$990x = 475 \quad x = \frac{475}{990}$

$0\dot{4}7\dot{9} = \frac{95}{198}$

Bronze Questions

Express the following as recurring decimals...

1. $\frac{1}{12}$
2. $\frac{4}{9}$
3. $\frac{2}{15}$
4. $\frac{1}{6}$
5. $\frac{1}{15}$
6. $\frac{7}{18}$

Silver Questions

Express the following recurring decimals as fractions...

1. $0\dot{7}\dot{8}$
2. $0\dot{2}\dot{7}$
3. $0\dot{9}\dot{6}$
4. $0{\cdot}7\dot{6}5$
5. $0\dot{3}\dot{8}$
6. $0{\cdot}5\dot{1}6$

Gold Questions

Express the following recurring decimals as fractions...

1. $0{\cdot}8\dot{4}$
2. $0{\cdot}3\dot{2}\dot{7}$
3. $0{\cdot}48$
4. $0{\cdot}5\dot{3}6$
5. $0{\cdot}6\dot{4}1$
6. $0{\cdot}1\dot{6}$

Bronze Answers

1. $0\cdot\dot{0}8\dot{3}$
2. $0\cdot\dot{4}$
3. $0\cdot1\dot{3}$
4. $0\cdot1\dot{6}$
5. $0\cdot0\dot{6}$
6. $0\cdot3\dot{8}$

Silver Answers

1. 78/99 = 26/33
2. 27/99 = 3/11
3. 96/99 = 32/33
4. 765/999 = 85/111
5. 38/99
6. 516/999 = 172/333

Gold Answers

1. 76/90 = 38/45
2. 324/990 = 18/55
3. 44/90 = 22/45
4. 531/990 = 59/110
5. 635/990 = 127/198
6. 15/90 = 1/6