Solutions

2.1

- six hundredths: $0.06 = \dfrac{6}{100} = \dfrac{\mathbf{3}}{\mathbf{50}}$

2.2

- divide 3 by 8: $3.000 \div 8 = \mathbf{0.375}$

2.3

- $\dfrac{7}{20} = \dfrac{35}{100} = \mathbf{35}\%$

2.4

- as decimals: 0.43, $\frac{3}{8} = 0.375$, $41\% = 0.41$, $\frac{2}{5} = 0.40$
- $\mathbf{\frac{3}{8}}$, $\mathbf{\frac{2}{5}}$, $\mathbf{41}\%$, $\mathbf{0.43}$

2.5

- $x = 0.2727\ldots$ and $100x = 27.2727\ldots$
- $100x - x = 99x = 27$
- $x = \dfrac{27}{99} = \dfrac{\mathbf{3}}{\mathbf{11}}$

2.6

- $y = 0.1666\ldots$: $100y = 16.666\ldots$ and $10y = 1.666\ldots$
- $100y - 10y = 90y = 15$
- $y = \dfrac{15}{90} = \dfrac{1}{6}$

3.1

(a) $0.85 = \dfrac{85}{100}$; divide by 5: $\dfrac{\mathbf{17}}{\mathbf{20}}$

(b) $\dfrac{5}{8} = 5 \div 8 = 0.625$; $0.625 > 0.600$, so $\dfrac{\mathbf{5}}{\mathbf{8}}$ is larger

3.2

- $40 = 2^3 \times 5$ and $25 = 5^2$ have only the prime factors 2 and 5; $12 = 2^2 \times 3$ has the factor 3
- $\dfrac{\mathbf{7}}{\mathbf{40}}$ and $\dfrac{\mathbf{9}}{\mathbf{25}}$ terminate; $\dfrac{5}{12}$ recurs

3.3

- as percentages: $\dfrac{3}{8} = 37.5\%$ and $0.35 = 35\%$
- $37.5 + 35 + 18 = 90.5\%$
- by car: $100 - 90.5 = \mathbf{9.5}\%$

3.4

- $x = 0.4555\ldots$: $100x = 45.555\ldots$ and $10x = 4.555\ldots$
- $100x - 10x = 90x = 41$
- $x = \dfrac{41}{90}$

3.5

- $0.\dot{3}\dot{6} = \dfrac{36}{99}$, since $100x - x = 36$
- $0.\dot{6}\dot{3} = \dfrac{63}{99}$ in the same way
- sum $= \dfrac{36}{99} + \dfrac{63}{99} = \dfrac{99}{99} = 1$