## Interchange between fractional and decimal number lines

**1** Complete the number lines.

**a)**

$$0 \quad 0.1 \quad 0.2 \quad 0{\cdot}3 \quad 0{\cdot}4 \quad 0{\cdot}5 \quad 0.6 \quad 0{\cdot}7 \quad 0{\cdot}8 \quad 0{\cdot}9 \quad 1$$

**b)**

$$0 \quad \frac{1}{10} \quad \frac{2}{10} \quad \frac{3}{10} \quad \frac{4}{10} \quad \frac{5}{10} \quad \frac{6}{10} \quad \frac{7}{10} \quad \frac{8}{10} \quad \frac{9}{10} \quad 1$$
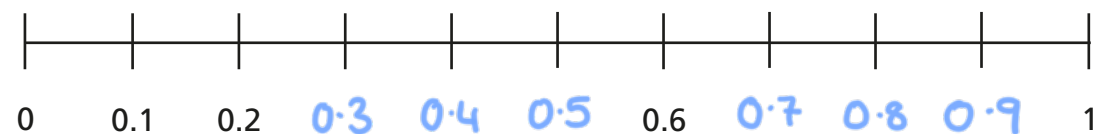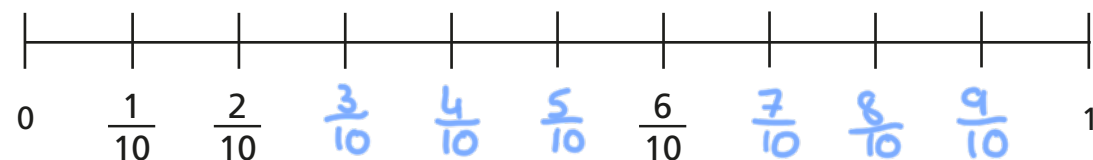
**c)** Are the number lines identical? Discuss with a partner.

**2** Complete the number lines.

**a)**

$$0.6 \quad 0{\cdot}61 \quad 0{\cdot}62 \quad 0{\cdot}63 \quad 0{\cdot}64 \quad 0{\cdot}65 \quad 0{\cdot}66 \quad 0{\cdot}67 \quad 0{\cdot}68 \quad 0{\cdot}69 \quad 0.7$$

**b)**

$$\frac{6}{10} \quad \frac{61}{100} \quad \frac{62}{100} \quad \frac{63}{100} \quad \frac{64}{100} \quad \frac{65}{100} \quad \frac{66}{100} \quad \frac{67}{100} \quad \frac{68}{100} \quad \frac{69}{100} \quad \frac{7}{10}$$

**3** Complete the number line by filling in the empty boxes.

$$0.6 \quad \boxed{0{\cdot}7} \quad \boxed{0{\cdot}8} \quad \boxed{0{\cdot}9} \quad \boxed{1} \quad 1.1$$

$$\boxed{\frac{6}{10}} \quad \frac{7}{10} \quad \boxed{\frac{8}{10}} \quad \frac{9}{10} \quad \boxed{1} \quad \boxed{\frac{11}{10}}$$
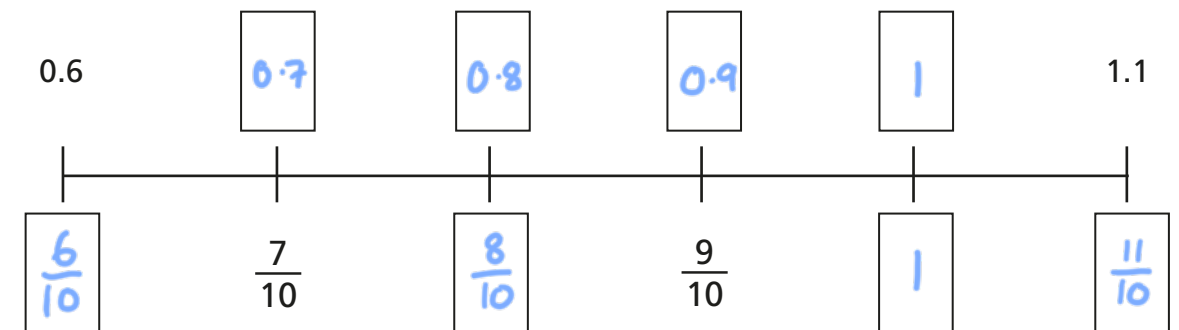
**4** What numbers are the arrows pointing to?

Give each answer as a fraction and a decimal.

**a)**

$$0 \qquad\qquad\qquad\qquad\qquad\qquad 1$$

fraction = $\boxed{\dfrac{45}{100}}$     decimal = $\boxed{0{\cdot}45}$

**b)**

$$\frac{5}{10} \qquad\qquad\qquad\qquad\qquad \frac{6}{10}$$

fraction = $\boxed{\dfrac{57}{100}}$     decimal = $\boxed{0{\cdot}57}$
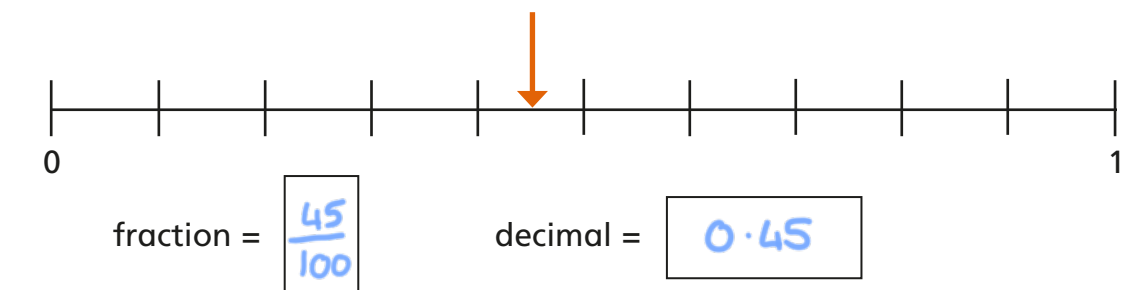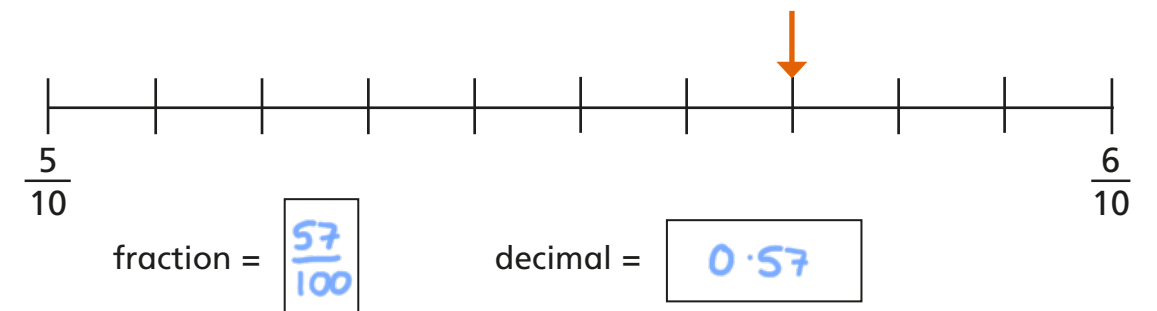
**c)** Point to another point on one of the number lines.

Ask your partner to tell you what the point is.

**5** Ron and Whitney are reading numbers from a number line.
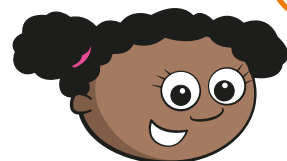
A

```
|----+----+----+----▼----+----+----|
0                                   1
```

**a)**
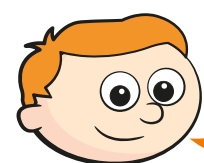
> A is pointing to 0.3

Ron is incorrect.

Explain the mistake that he has made.

He has assumed the number line is going up in 0·1s

**b)**

> A is pointing to $\frac{6}{100}$

Whitney is incorrect.

Explain the mistake that she has made.

She has mixed up tenths and hundredths.

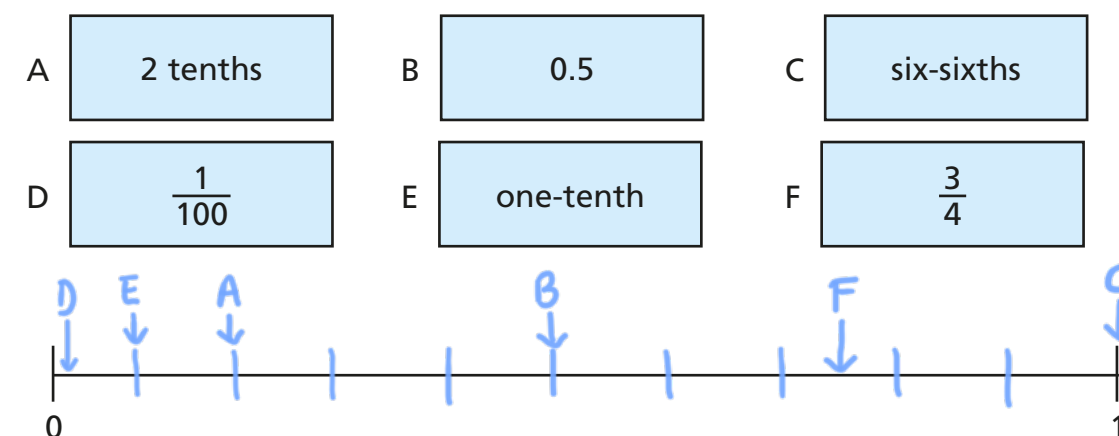**c)** What number is A pointing to?

Give your answer as a fraction and a decimal.
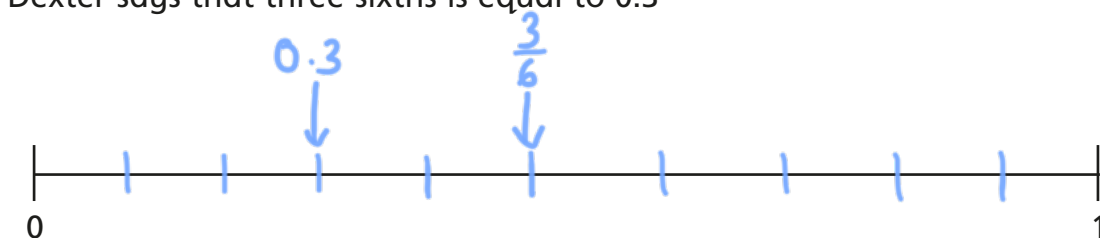
A = $\frac{6}{10}$          A = 0·6

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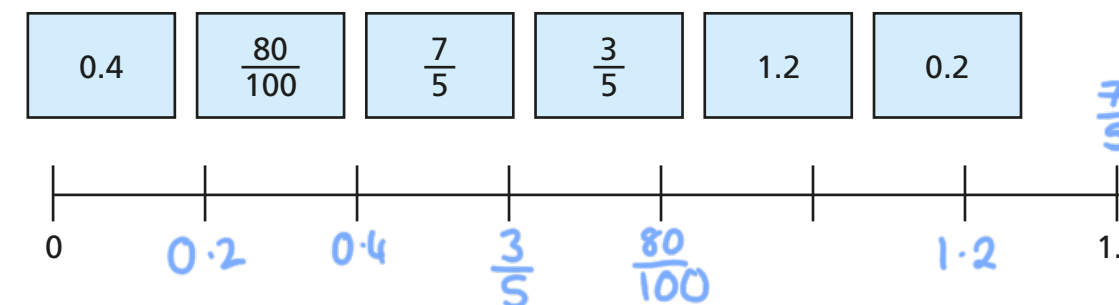**6** Show the approximate position of the numbers on the number line.

| A | 2 tenths | B | 0.5 | C | six-sixths |
|---|---|---|---|---|---|
| D | $\frac{1}{100}$ | E | one-tenth | F | $\frac{3}{4}$ |

```
  D  E   A            B            F      C
  ↓  ↓   ↓            ↓            ↓      ↓
  |--+---+---+----+----+----+----+--+----+--|
  0                                          1
```

**7** Dexter says that three-sixths is equal to 0.3

```
           0·3       3/6
            ↓         ↓
  |---+---+--+----+----+----+----+----+----|
  0                                         1
```

Mark both of these numbers on the number line to show that Dexter is incorrect.

**8** Complete the number line, using the numbers in the boxes.

| 0.4 | $\frac{80}{100}$ | $\frac{7}{5}$ | $\frac{3}{5}$ | 1.2 | 0.2 |
|---|---|---|---|---|---|

$\frac{7}{5}$

```
  |----+----+----+----+----+----+----|
  0    0·2  0·4  3/5  80/100    1·2  1.4
```

**9** Explain why 11 tenths is a greater number than 73 hundredths.

$\frac{11}{10} > 1$ and $\frac{73}{100} < 1$ so $\frac{11}{10} > \frac{73}{100}$