Conversions: Decimals, Percentages, and Fractions

Q1. Write the following decimals as a fraction in simplest form and as a percentage:

(a) 0.125

(b) 0.203125

Q2. Convert the following fractions into decimals and percentages:

(a) $\frac{7}{20}$

(b) $\frac{33}{320}$

Q3. Express the following percentages as decimals and fractions in simplest form:

(a) 17.5%

(b) 57.8125%

Q4. Basis points are units used in finance to describe small changes of percentages. A basis point is a percent of a percent:

$$1 \text{ basis point} = 0.01\%$$

They are often used to describe changes in interest rates or yields.

For example, an increase of 25 basis points means the interest rate goes up by 0.25%.

(a) Write one basis point as a decimal and a fraction in simplest form.

(b) Write 175 basis points as a decimal and a fraction in simplest form.

Gilts are UK government bonds. When you buy a gilt, you are lending money to the government.

The UK government currently issues 30-year gilts offering a simple return (not compounding) of 5.355% per year.

They use these to borrow money to fund investment. Each year they pay a **coupon** equal to 5.355% of the amount borrowed. At the end of the 30 years they pay back the original amount borrowed.

Other durations (1-year, 5-year, 10-year) of Gilts are also sold.

(c) Find 5.355% as a decimal and a fraction in its simplest form.

(d) Calculate the total cost for the government to borrow £1000 over 30 years, including payback of the original amount.

(e) Suppose the coupon payment of a 30 year gilt rises 43.5 basis points. How much more does it cost the government to borrow £1000 over 30 years?