

## Linear Conversion

### Starter

1. **(Review of last lesson)** Bronze is a metal alloy which for one purpose contains copper and tin in the ratio 3 : 22 by mass. What mass of copper is needed to make 5 kg of this bronze?
2. Jack and Mary have sweets in the ratio 3 : 4. If Jack eats 2 sweets the ratio becomes 2 : 3. Find how many sweets Jack and Mary originally had.
3. If £1 is worth \$1.30, convert:            (a)    £18 to dollars            (b)    \$60 to pounds

**N.B.** Answers involving money should be given to 2 d.p. unless otherwise stated.

### Notes

Linear conversion is similar to direct proportion but it can become complicated when two or more conversions are required.

**E.g.** Given that there are 1.6 km in a mile, convert (a) 25 miles to km (b) 56 km to miles.

**Working:**    (a)    25 miles  $\equiv 25 \times 1.6 = 40$  km

                  (b)    56 km  $\equiv 56 \div 1.6 = 35$  miles

**E.g. 1** Given that £1 = \$1.33 and \$1 = €1.21, convert:    (a) £500 to €            (b) €2500 to £.

**E.g. 2** There are 16 oz (ounces) to 1 lb (pound), and 2.2 lb in kg. Convert 1.5 kg to ounces.

**E.g. 3\*** Janet is on a business trip to Paris then New York. She exchanges £700 to Euros at a rate of € 1 = £0.88. In Paris she spends €340 and then exchanges the remaining euros to dollars at a rate of €1 = \$1.15. How many dollars did she have to spend in New York?

**Video:**            [Conversion graphs](#)

[Solutions to Starter and E.g.s](#)

### Exercise

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[Textbook answers \(only available during a lockdown\)](#)