

Examples:

$$x = y - z$$

If $y = 6.7$ to 1 decimal place, and $z = 2.3$ to 1 decimal place, find the upper and lower bound of x .

$$\begin{aligned} x_u &= y_u - z_l & x_l &= y_l - z_u \\ x_u &= 6.75 - 2.25 & x_l &= 6.65 - 2.35 \\ x_u &= 4.5 & x_l &= 4.3 \end{aligned}$$

$$a = \frac{b + c}{d}$$

If $b = 10.2$ to 1 decimal place
 $c = 4.36$ to 2 decimal places and
 $d = 0.5$ to 1 decimal place,
 Find the lower bound of a .

$$a_l = \frac{b_l + c_l}{d_u} = \frac{10.15 + 4.355}{0.55}$$

$$a_l = 26.3737 \dots = 26.37$$

Remember: If we are adding or multiplying we use the “same” bound. When dividing or subtracting we use the “opposite” bound.

Q1) $a = b + c - d$.

$a = 6$, $b = 7.2$ and $c = 1.8$, all correct to 1 decimal place. Find the upper and lower bound for a .

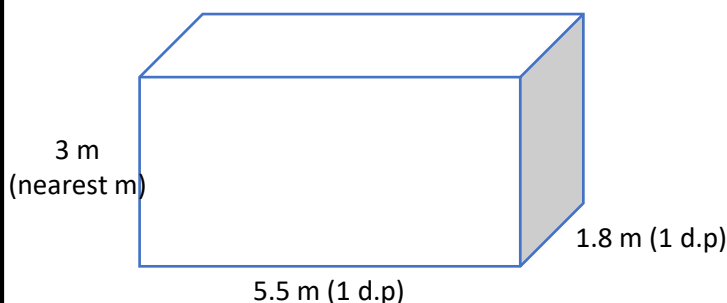
Q2)

$$r = \frac{s}{t}$$

$s = 10.62$ to 2 d.p and $t = 1.9$ to 1 d.p. Find the upper and lower bound of r

Q3) A football pitch is measured. The width is given as 42.5m to 1 d.p and the length as 98m to the nearest m. If each bag of grass seed covers 50m^2 and costs £120, what is the maximum cost of reseeding the football pitch?

Q4)



The container on the left holds pig feed. A farmer orders 48kg of pig feed and says that this will definitely fit in his container. Is the farmer correct?
 $(1\text{m}^3 = 2\text{kg of pig feed})$