Q1. Share 240 pounds between Ali and Beth in the ratio 3 : 5

1) $\frac{240}{3+5} = \frac{24}{8} \times 10$

$= 30$

so $30 \times 3 = 90$ and $5 \times 30 = 150$

so Ali gets 90 and Beth 150

Q2. A Coat costs 85 pounds it is reduced by 25 percent in a sale what is the new price

$85 \times (1 - 0.25) = 85 \times (0.75)$

$= 63.75$

Q3. A Coat costs 85 pounds it originally cost 100 pounds what is the percentage decrease to 1dp

$100 \times x = 85$ then $x = \frac{85}{100}$

so the percentage decrease

is $100 \times (1 - x) = 100 \times 0.15$

$= 15\%$

Q4. x and y are directly proportinal when $x = 5$ $y = 35$ what is y when $x = 11$

$\frac{x}{y} = r$ so $\frac{5}{35} = \frac{1}{7}$

then $\frac{11}{y} = \frac{1}{7}$ so $y = 77$

Q5. y is inversely proportional to x. When $x = 3$, $y = 4$. Find x when y = 9

$xy = r$ so

$r = 3 \times 4 = 12$ then

$12 = xy$ So let $y = 9$

then $x = \frac{12}{9}$

Q6. A car travels 150 miles in 2.5 hours. Calculate its average speed in mph.

$S = \frac{d}{t}$, $S = \frac{150}{2.5}$

$= \frac{1500}{25}$

$= 40 + 20$

$= 60$ mph

Q7. A population of bacteria doubles every 3 hours. There are 500 bacteria at 9 am. How many are there at 6 pm the same day?

9am $\longrightarrow$ 6pm is 9 hours

so there are 500×2^9