E Summer Proportion Direct

1. The variables x and y vary in direct proportion. Copy and complete the following table.

x	1			6		60
y		1	4	8	10	

$\frac{3}{4}$, 3, $\frac{15}{2}$, $\frac{4}{3}$, 80

2. The variables p and q vary in direct proportion. Copy and complete the following table.

p	2		5	10	11	
q		3	7			15

$\frac{15}{7}$, $\frac{75}{7}$, $\frac{14}{5}$, 14, $\frac{77}{5}$

3. The variables l and n vary in direct proportion. Copy and complete the following table.

l	$\frac{1}{10}$	$\frac{1}{3}$	$\frac{2}{3}$			7
n			$\frac{1}{4}$	$\frac{1}{3}$	$\frac{5}{2}$	

$\frac{8}{9}$, $\frac{20}{3}$, $\frac{3}{80}$, $\frac{1}{8}$, $\frac{21}{8}$

4. The distance a car can travel is directly proportional to the volume of petrol in the car. With 6.2 gallons of petrol the car can travel 310 miles.
   (a) How far can the car go with 9.1 gallons of petrol? 455 miles
   (b) How much petrol is needed for a 400 mile journey? 8 gallons

5. At a given time of day the length of the shadow cast by the sun is proportional to the height of the building. A building of height 42 metres casts a shadow of 18 metres.
   (a) How long will the shadow be from a tower which is 50 metres? $\frac{150}{7}$ metres
   (b) How tall will a tower need to be to cast a shadow of 110 metres? $\frac{770}{3}$ metres

6. A school has a fungus infestation. The area of fungus is proportional to the length of time it has been in the school. After 15 days it covers an area of 5.2 square metres.
   (a) When will the fungus cover an area of 27.3 square metres? $\frac{315}{4}$ days
   (b) What area will the fungus cover in two *years*? $\frac{3796}{15}$ square metres

7. The amount of current (measured in amps) flowing through a circuit is proportional to the voltage (measured in volts). 2.7 amps flows with a 4.5 volt battery.
   (a) How much current would flow with a 10 volt battery? 6 amps
   (b) What voltage battery would be required for a current of 30 amps? 50 volts

8. The variables x and y vary in direct proportion. Copy and complete the following table.

x	n^3		$\frac{n^2}{m}$
y	nm	m^2	

$mn^2, 1$

9. The variables x and y vary in direct proportion. Copy and complete the following table.

x	n	$n+1$	n^3	
y	5			m

$\frac{mn}{5}, \frac{5(n+1)}{n}, 5n^2$

10. The variables x and y vary in direct proportion. Copy and complete the following table.

x	$2r+2$	
y	$r+1$	$r-3$

$2(r-3)$

11. The variables x and y vary in direct proportion. Copy and complete the following table.

x	n	$n+1$
y	n^2-n	

n^2-1