a) P is directly proportional to Q^2 and P = 10 when Q = 2

i) Find the equation linking P and Q

ii) Find the value of P when Q = 11

i) $P = kQ^2$

$10 = k \times 2^2 = 4k$

$k = 2.5$

$P = 2.5Q^2$

ii) $P = 5 \times 11^2$

$P = 605$

b) P is directly proportional to Q^3 and P = 128 when Q = 4

i) Find the equation linking P and Q

ii) Find the value of P when Q = 5

i) $P = kQ^3$

$128 = k \times 4^3 = 64k$

$k = 2$

$P = 2Q^3$

ii) $P = 2 \times 5^3$

$P =$ ……

c) P is directly proportional to $\sqrt{Q}$ and P = 36 when Q = 9

i) Find the equation linking P and Q

ii) Find the value of P when Q = 49

i) $P = k\sqrt{Q}$

$36 = k \times \sqrt{9} = 3k$

$k = 12$

$P =$ …….Q

ii) $P =$ ……. × ……

$P =$ ……

d) P is directly proportional to Q^2 and P = 48 when Q = 4

i) Find the equation linking P and Q

ii) Find the value of P when Q = 11

i) $P = kQ^2$

$48 = k \times 4^2 = 16k$

$k =$ ……..

$P =$ …….Q^2

ii) $P =$ ……. × ……

$P =$ ……

e) P is directly proportional to Q^3 and P = 32 when Q = 64

i) Find the equation linking P and Q

ii) Find the value of P when Q = 10

i) $P = kQ^3$

……. = k × ……. = ……k

$k =$ ……..

$P =$ …….Q

ii) $P =$ ……. × ……

$P =$ ……

f) P is directly proportional to $\sqrt[3]{Q}$ and P = 70 when Q = 1000

i) Find the equation linking P and Q

ii) Find the value of P when Q = 27