Algebraic Inverse Proportion

(a) y is inversely proportional to x.
When $x = 8, y = 20$.
(i) Find an equation for y in terms of x
(ii) Find the value of y when $x = 40$

(b) a is inversely proportional to b.
Complete the table of values.

b	5	8	20	32
a	16	10	4	2.5

(ai) $y = \frac{160}{x}$

(aii) $y = 4$

(c) f is inversely proportional to g^2.
When $g = 3, f = 100$.
(i) Find an equation for f in terms of g
(ii) Find the value of f when $g = 5$

(d) w is inversely proportional to the square of t. Complete the table of values.

t	2	5	10	25
w	250	40	10	1.6

(ci) $f = \frac{900}{g^2}$

(cii) $f = 36$

(e) y is inversely proportional to x^3.
When $x = 3, y = 20$.
(i) Find an equation for y in terms of x
(ii) Find the value of y when $x = 10$

(f) p is inversely proportional to $\sqrt{q}$.
When $q = 36, p = 12$.
(i) Find an equation for p in terms of q
(ii) Find the value of p when $q = 16$

(ei) $y = \frac{540}{x^3}$

(eii) $y = 0.54$

(fi) $p = \frac{72}{\sqrt{q}}$

(fii) $p = 18$

(g) m is inversely proportional to the cube root of n. When $n = 27, m = \frac{10}{3}$.
(i) Find an equation for m in terms of n
(ii) Find the value of n when $m = \frac{5}{4}$

(gi) $m = \frac{10}{\sqrt[3]{n}}$

(gii) $n = 2$

(h) y is inversely proportional to $\sqrt[3]{x}$.
Complete the table of values.

x	8	64	125	512
y	40	20	16	10