Question Number	Scheme	Marks
7(a)	$\frac{ar^7}{ar^6} = \frac{1152}{192} \quad (=6) = r$	B1
	4th term $= \frac{192}{6^3}$ or $\frac{1152}{6^4} = \frac{8}{9}$	M1A1 (3)
(b)	$\frac{t_3}{r} + t_3 + rt_3 \implies \frac{24}{r} + 24 + 24r = -36$	M1A1 NB B1B1 on e-PEN
	$24 + 24r + 24r^2 = -36r$	dM1
	$24r^2 + 60r + 24 = 2r^2 + 5r + 2 = 0$ *	ddM1A1cso (5)
(c)	$2r^2 + 5r + 2 = 0 \Rightarrow (2r+1)(r+2) = 0 \Rightarrow r = -\frac{1}{2}$	M1A1
	$S = \frac{a}{1-r} = \frac{24 \div \left(-\frac{1}{2}\right)^2}{1-\left(-\frac{1}{2}\right)}, = 64$	M1,A1 (4)
		[12]

(a)

B1 Obtain a correct value for r. Fraction need not be simplified

M1 Use their r and either the 7th or 8th term divided by the appropriate power of r to obtain the 4th term as a fraction – no need to simplify

A1 $\frac{8}{9}$

ALT M1 Find a (=1/243) and use ar^3 A1 Correct answer

(b)

M1 Use the given information to obtain an equation in r

A1 Correct equation

dM1 Eliminate the fraction

ddM1 Obtain a 3TQ, terms in any order

A1cso Reach the given result with no errors in the working

(c)

M1 Solve the given quadratic by any valid method. Must reach a value of r

A1 Correct value of r (Ignore second answer if given)

M1 Use the formula for the sum to infinity with their r **provided** $|r| < 1$. a must be 24 divided by (their r)^2

A1 Correct answer.