



HSC STYLE HOMEWORK

NAME:

SEMINAR DAY & TIME:

www.talent-100.com.au 1300 999 100

Foundations Mathematics

Algebra I

General Instructions

- Reading time – 5 minutes
- Working time – 60 minutes.
- Write using black or blue pen
- Draw diagrams in pencil
- Board-approved calculators may be used
- Approved data sheets and periodic tables may be used
- All necessary working should be shown in every question

SUBSTITUTIONS

Question 1

Given $a = 1$, $b = 3$, $c = -2$, find:

a) $a+b+c$

b) $ab - c$

c) $a(b+c)$

d) ab^2c

e) $\frac{a+b}{c}$

f) $\sqrt{b^2 - 4ac}$

g) $(a+c)(b+c)$

i) $\frac{-b+\sqrt{b^2-4ac}}{2a}$

Question 2

Given $u = -3$, $a = -10$, $r = 15$, $v = 4$, $t = 12$, Find

a) $u+at$

b) $ut + \frac{1}{2}at^2$

c) u^2+2ar

d) v^2-2ar

e) $\frac{r - \frac{1}{2}at^2}{t}$

f) $\frac{v-u}{t}$

COLLECTING LIKE TERMS

Question 3

Simplify by collecting like terms:

a) $4a + 5a$

b) $x^2 + x^2$

c) $-4n + 11n$

d) $-3g - (-7g)$

e) $4a - 3 - 8a - (-5k)$

f) $x - 7x^2 + 3x + 1$

h) $-q - 3q - 8 - 7 - p$

i) $-m^2 - 4m^2 + 4m$

j) $2m + 1 + 4m - 5m + 1$

g) $-3s^2t - 4ts^2 + 11s^2t$

h) $4s^2t - 5s^2t + 11st - 6st^2$

i) $17x + 121x - 14x + x - 3y + 21y$

j) $7pq - (5pq - 7pq) + 19pq$

k) $-5k - (-3k) - (6k)$

l) $-8w^2 - 5w - 7w + 15w^2$

m) $-p - 7 - 3p - 8 - (-5p)$

ALGEBRAIC MULTIPLICATION AND POWERS**Question 4**

Simplify:

a) $b^5 \times b^7$

b) $b^7 \times b^6$

c) $ad^2 \times ad$

d) $4y \times 3y^2 \times 12y$

e) $5zy^3 \times 4y^5z^4$

f) $3xy \times 2z \times 4w \times 10zxw^2$

g) $(ab+1)^2 \times (ab+1)^3$

h) $(abcd)^4$

i) $(a^2bc^2)^3$

j) $(xy^2)^2$

k) $(a^2b^2c)^5 \times (abc^2)$

l) $(abc) \times (2abc)^3$

m) $(a+b) \times (a+b)(a-b)$

n) $(x+y) \times (x+y+z)(x+y)$