

TAURANGA GIRLS' COLLEGE
Algebra Skills – MCAT preparation #1
DO NOT USE A CALCULATOR



1	Simplify $4a - 10a - 3a$	
2	Simplify $3c + 4d + 5c + 8d$	
3	Simplify $2a + 3 - a - 5$	
4	Simplify $2xy^2 + 7xy^2$	
5	Simplify $-6a \times 3a$	
6	Simplify $4b \times 2by$	
7	Simplify $\frac{28ac}{4a}$	
8	Simplify $\frac{6a}{21a}$	
9	Simplify $b \times b \times b + c \times c$	
10	Simplify $c^4 \times c^4$	
11	Simplify $4a^2 \times 3a^5$	
12	Simplify $(q^3)^5$	
13	Simplify $(3a^2b)^3$	
14	Simplify $\frac{c^{10}}{c^2}$	
15	Simplify $\frac{20f^{12}}{4f^6}$	

Remember – take your time and focus on *understanding*. Answers are on the Maths department web page: TGC web page / Curriculum / Maths

Skills reference:

Skill	A	F
Questions	1 - 8	9 - 15

TAURANGA GIRLS' COLLEGE
Algebra Skills – MCAT preparation #2
DO NOT USE A CALCULATOR



1	Simplify $3f + 2z + 3f - 5z$	
2	Simplify $2c - 2c - 3d - 3d$	
3	Simplify $2ab + 2ba$	
4	Simplify $9b^2 + 6b^2$	
5	Simplify $a + a + b + b + b + b$	
6	Simplify $5m^2 \times 4n$	
7	Simplify $f^3 \times f^5 \times f$	
8	Simplify $5b^2 \times 3b^2$	
9	Simplify $\frac{15a}{10}$	
10	Simplify $\frac{b^8}{b^4}$	
11	Simplify $\frac{18a^7}{2a^3}$	
12	Simplify $(2a)^3$	
13	Simplify $3(a^2)^4$	
14	Simplify $\frac{(6a)^2}{2a}$	
15	Simplify $\frac{(3b^2)^3}{21b}$	

Remember – take your time and focus on *understanding*. Answers are on the Maths department web page: TGC web page / Curriculum / Maths

Skills reference:

Skill	A	F
Questions	1 - 5	6 - 15

TAURANGA GIRLS' COLLEGE
Algebra Skills – MCAT preparation #3
DO NOT USE A CALCULATOR



1	Simplify $5c - 2d - 6c - d$	
2	Simplify $2f^2 \times 3f^4$	
3	Simplify $4b \times b + b^2$	
4	Simplify $\frac{5c}{15c^3}$	
5	Expand $2(x + 4)$	
6	Expand and simplify $3x(x + 2) + 5x$	
7	Expand and simplify $3x(4x - 2) + 5x(2x + 3)$	
8	Factorise $4a - 8$	
9	Factorise $6e - 18ef$	
10	Expand and simplify $(x + 2)(x + 3)$	
11	Solve $h + 6 = 17$	
12	Solve $3a - 13 = 8$	
13	Solve $\frac{x}{2} + 12 = 24$	
14	Solve $0.7x = 4.2$	
15	Solve $5(x + 3) = 35$	

Remember – take your time and focus on *understanding*. Answers are on the Maths department web page: TGC web page / Curriculum / Maths

Skills reference:

Skill	A	F	B	D	C	H
Questions	1	2 - 4	5 - 7	8 - 9	10	11 - 15

TAURANGA GIRLS' COLLEGE
Algebra Skills – MCAT preparation #4
DO NOT USE A CALCULATOR



1	Simplify $4x \cdot 9x \cdot 2x$	
2	Simplify $\frac{4y^4}{20xy^3}$	
3	Simplify $3(2xy)^3$	
4	Simplify $\frac{4(y^4)^3}{20xy^3}$	
5	Expand and simplify $7b^2(a + b) + 8ab$	
6	Expand and simplify $7b(a + 5b) - 5b(a + 2b)$	
7	Expand and simplify $(a + 5b)(a + 2b)$	
8	Expand and simplify $(a + 5b)^2$	
9	Factorise $7x - 42$	
10	Factorise $12x^2 - 6x$	
11	Factorise $x^2 + 7x + 12$	
12	If $x = 4$ find the value of: (substitute) $x^2 - x$	
13	If $x = 4$ find the value of: (substitute) $(x - 2)(x + 5)$	
14	Solve $2b + 18 = -43$	
15	Solve $\frac{x}{2} + 1 = -3$	

Remember – take your time and focus on *understanding*. Answers are on the Maths department web page: TGC web page / Curriculum / Maths

Skills reference:

Skill	F	B	C	D	E	G	H
Questions	1 - 4	5 - 6	7 - 8	9 - 10	11	12 – 13	14 – 15

TAURANGA GIRLS' COLLEGE		
Algebra Skills – MCAT preparation #1 Answers		
1	Simplify $4a - 10a - 3a$	$-9a$
2	Simplify $3c + 4d + 5c + 8d$	$8c + 12d$
3	Simplify $2a + 3 - a - 5$	$a - 2$
4	Simplify $2xy^2 + 7xy^2$	$9xy^2$
5	Simplify $-6a \times 3a$	$-18a^2$
6	Simplify $4b \times 2by$	$8b^2y$
7	Simplify $\frac{28ac}{4a}$	$7c$
8	Simplify $\frac{6a}{21a}$	$\frac{2}{7}$
9	Simplify $b \times b \times b + c \times c$	$b^3 + c^2$
10	Simplify $c^4 \times c^4$	c^8
11	Simplify $4a^2 \times 3a^5$	$12a^7$
12	Simplify $(q^3)^5$	q^{15}
13	Simplify $(3a^2b)^3$	$27a^6b^3$
14	Simplify $\frac{c^{10}}{c^2}$	c^8
15	Simplify $\frac{20f^{12}}{4f^6}$	$5f^6$

Get some wrong?

Look at which skill you need to practice and look at the further references for understanding and practice.

TAURANGA GIRLS' COLLEGE		
Algebra Skills – MCAT preparation #2 Answers		
1	Simplify $3f + 2z + 3f - 5z$	$6f - 3z$
2	Simplify $2c - 2c - 3d - 3d$	$-6d$
3	Simplify $2ab + 2ba$	$4ab$
4	Simplify $9b^2 + 6b^2$	$15b^2$
5	Simplify $a + a + b + b + b + b$	$2a + 4b$
6	Simplify $5m^2 \times 4n$	$20m^2n$
7	Simplify $f^3 \times f^5 \times f$	f^9
8	Simplify $5b^2 \times 3b^2$	$15b^4$
9	Simplify $\frac{15a}{10}$	$\frac{3a}{2}$
10	Simplify $\frac{b^8}{b^4}$	b^4
11	Simplify $\frac{18a^7}{2a^3}$	$9a^4$
12	Simplify $(2a)^3$	$8a^3$
13	Simplify $3(a^2)^4$	$3a^8$
14	Simplify $\frac{(6a)^2}{2a}$	$18a$
15	Simplify $\frac{(3b^2)^3}{21b}$	$\frac{9b^5}{7}$

Get some wrong?

Look at which skill you need to practice and look at the further references for understanding and practice.

TAURANGA GIRLS' COLLEGE		
Algebra Skills – MCAT preparation #3 Answers		
1	Simplify $5c - 2d - 6c - d$	$-c - 3d$
2	Simplify $2f^2 \times 3f^4$	$6f^6$
3	Simplify $4b \times b + b^2$	$5b^2$
4	Simplify $\frac{5c}{15c^3}$	$\frac{1}{3c^2}$
5	Expand $2(x + 4)$	$2x + 8$
6	Expand and simplify $3x(x + 2) + 5x$	$3x^2 + 11x$
7	Expand and simplify $3x(4x - 2) + 5x(2x + 3)$	$22x^2 + 9x$
8	Factorise $4a - 8$	$4(a - 2)$
9	Factorise $6e - 18ef$	$6e(1 - 3f)$
10	Expand and simplify $(x + 2)(x + 3)$	$x^2 + 5x + 6$
11	Solve $h + 6 = 17$	$h = 11$
12	Solve $3a - 13 = 8$	$a = 7$
13	Solve $\frac{x}{2} + 12 = 24$	$x = 24$
14	Solve $0.7x = 4.2$	$x = 6$
15	Solve $5(x + 3) = 35$	$x = 4$

Get some wrong?

Look at which skill you need to practice and look at the further references for understanding and practice.

TAURANGA GIRLS' COLLEGE		
Algebra Skills – MCAT preparation #4 - Answers		
1	Simplify $4x \cdot 9x \cdot 2x$	$72x^3$
2	Simplify $\frac{4y^4}{20xy^3}$	$\frac{y}{5x}$
3	Simplify $3(2xy)^3$	$24x^3y^3$
4	Simplify $\frac{4(y^4)^3}{20xy^3}$	$\frac{y^9}{5x}$
5	Expand and Simplify $7b^2(a + b) + 8ab$	$7ab^2 + 7b^3 + 8ab$
6	Expand and Simplify $7b(a + 5b) - 5b(a + 2b)$	$2ab + 25b^2$
7	Expand and Simplify $(a + 5b)(a + 2b)$	$a^2 + 7ab + 10b^2$
8	Expand and Simplify $(a + 5b)^2$	$a^2 + 10ab + 25b^2$
9	Factorise $7x - 42$	$7(x - 6)$
10	Factorise $12x^2 - 6x$	$6x(2x - 1)$
11	Factorise $x^2 + 7x + 12$	$(x + 3)(x + 4)$
12	If $x = 4$ find the value of: (substitute) $x^2 - x$	12
13	If $x = 4$ find the value of: (substitute) $(x - 2)(x + 5)$	18
14	Solve $2b + 18 = -43$	$b = -30.5$
15	Solve $\frac{x}{2} + 1 = -3$	$x = -8$

Get some wrong?

Look at which skill you need to practice and look at the further references for understanding and practice.