



Gema Bedmas

Mana Maths

Te reo Māori terms



mahi

operation

[Open in Te Aka](#)

raupapa paheko

order of operations

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tau whakarea

multiplication

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tau whakawehe

division

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Notes & Steps



Key idea

GEMA tells you the order to work in: **G**rouping symbols first, then **E**xponents, then **M**ultiplication and **D**ivision from left to right, then **A**ddition and **S**ubtraction from left to right.

Steps

1. Do anything inside brackets first.
2. Work out powers such as 3^2 .
3. Multiply and divide from left to right.
4. Add and subtract from left to right.
5. If two versions look similar, brackets can completely change the value.

Key facts

- ▶ $3 + 4 \times 2 = 11$, not 14.
- ▶ $(3 + 4) \times 2 = 14$.
- ▶ $18 \div 3 \times 2 = 6 \times 2 = 12$.
- ▶ $2^3 + 5 = 8 + 5 = 13$.
- ▶ Multiplication and division have equal priority.
- ▶ Addition and subtraction have equal priority.

Common mistake

Doing addition before multiplication. In $5 + 2 \times 3$, you must do 2×3 first, so the answer is 11, not 21.

Try these

1. Evaluate $6 + 3 \times 4$.
2. Evaluate $(6 + 3) \times 4$.
3. Evaluate $20 \div (2 + 3)$.

Notes & Steps



Example 1: no brackets

Evaluate $7 + 3 \times 2$.

$$7 + 3 \times 2 = 7 + 6 = 13$$

Multiply first, then add.

Example 2: brackets

Evaluate $(7 + 3) \times 2$.

$$(7 + 3) \times 2 = 10 \times 2 = 20$$

Brackets make the addition happen first.

Example 3: left to right

Evaluate $18 \div 3 \times 2$.

$$18 \div 3 \times 2 = 6 \times 2 = 12$$

Do division and multiplication left to right.

Example 4: powers

Evaluate $2^3 + 4$.

$$2^3 + 4 = 8 + 4 = 12$$

Work out the exponent before adding.

Start Tasks



1. Evaluate: $7 + 3 \times 2$.

2. Evaluate: $18 \div 3 + 4$.

3. Evaluate:
 $(6 + 2) \times 2$.

4. Evaluate: $15 - 4 \times 3$.

5. Evaluate:
 $20 \div (2 + 3)$.

6. Evaluate:
 $4 \times (9 - 5)$.

7. Evaluate: $12 - 8 \div 4$.

8. Evaluate:
 $(10 - 6) + 5 \times 2$.

9. Evaluate:
 $3 + 16 \div 4 - 1$.

GEMA (formerly BEDMAS) – Answers



1. 13

2. 10

3. 16

4. 3

5. 4

6. 16

7. 10

8. 13

9. 6

Start Tasks



10. Evaluate:

$$(14 - 8) \times 3.$$

11. Evaluate:

$$6 + 2 \times (7 - 4).$$

12. Evaluate:

$$18 \div 3 \times 2.$$

13. Evaluate:

$$(5 + 7) \div 3.$$

14. Evaluate:

$$9 \times 2 - (6 + 3).$$

15. Evaluate:

$$20 - (12 \div 3).$$

16. Evaluate:

$$8 + (15 \div 5) \times 2.$$

17. Evaluate:

$$(4 + 6) \times 2 - 7.$$

18. Evaluate:

$$18 \div (7 - 4) + 2.$$

GEMA (formerly BEDMAS) – Answers



10. 18

11. 11

12. 12

13. 4

14. 9

15. 16

16. 14

17. 13

18. 8

Start Tasks



19. Evaluate:

$$3 \times (8 - 3) + 1.$$

20. Evaluate:

$$14 - 6 + 12 \div 3.$$

21. Evaluate:

$$(9 + 9) \div 2 + 4.$$

22. Evaluate:

$$5 + (12 - 4) \div 2.$$

23. Evaluate:

$$16 \div 4 + 3 \times 2.$$

24. Evaluate:

$$(11 - 5) \times 2 + 3.$$

25. Evaluate:

$$20 - (3 + 7) \div 2.$$

26. Evaluate:

$$2 \times (4 + 5) - 6.$$

27. Evaluate:

$$(18 \div 3) + (14 - 9).$$

GEMA (formerly BEDMAS) – Answers



19. 16

20. 10

21. 13

22. 9

23. 10

24. 15

25. 15

26. 12

27. 11

Build Tasks



1. Evaluate: $3^2 + 4 \times 2$.

2. Evaluate:
 $18 \div 3 + 2^3$.

3. Evaluate: $(5 + 1)^2$.

4. Evaluate:
 $2(7 - 3) + 4^2$.

5. Evaluate:
 $20 - 3^2 \times 2$.

6. Evaluate:
 $24 \div (2 + 4) + 5$.

7. Evaluate:
 $(9 - 5)^2 + 1$.

8. Evaluate: $4 \times 3^2 - 7$.

9. Evaluate:
 $36 \div 3^2 + 2$.

GEMA (formerly BEDMAS) – Answers



1. 17

2. 14

3. 36

4. 24

5. 2

6. 9

7. 17

8. 29

9. 6

Build Tasks



10. Evaluate:

$$2 + 3 \times (6 - 2)^2.$$

11. Evaluate:

$$(8 + 1) \div 3 + 2^2.$$

12. Evaluate:

$$5^2 - 4 \times 3.$$

13. When $x = 3$, find

$$2x + 4^2.$$

14. When $x = 2$, find

$$3x^2 + 1.$$

15. When $y = 5$, find

$$(y - 2)^2.$$

16. Evaluate:

$$6 + 24 \div 3 \times 2.$$

17. Evaluate:

$$(12 - 4) \div 2 + 3^2.$$

18. Evaluate:

$$2^3 + 5(4 - 1).$$

GEMA (formerly BEDMAS) – Answers



10. 50

11. 5

12. 13

13. 22

14. 13

15. 9

16. 14

17. 10

18. 16

Build Tasks



19. Evaluate:

$$18 - (2 + 1)^2.$$

20. Evaluate:

$$4(6 - 2) + 9 \div 3.$$

21. Evaluate:

$$7 + 2^2 \times 3.$$

22. Evaluate:

$$(3 + 5)^2 \div 4.$$

23. Evaluate:

$$30 \div (8 - 3) + 2^2.$$

24. Evaluate:

$$2(9 - 4) - 3^2.$$

25. Evaluate:

$$6^2 \div 9 + 8.$$

26. Evaluate:

$$(15 \div 3) + 2^3.$$

27. Evaluate:

$$5 + 2(3^2 - 4).$$

GEMA (formerly BEDMAS) – Answers



19. 9

20. 15

21. 19

22. 16

23. 6

24. 1

25. 12

26. 8

27. 19

Push Tasks



1. Evaluate:

$$18 - 2 \times (3 + 4).$$

2. Evaluate:

$$6 + 24 \div 3 \times 2.$$

3. Evaluate:

$$5(7 - 3) + 2^3.$$

4. When $x = 4$, find $3x + 2^2$.

5. Is $2 + 6 \div 3 \times 4 = 10$ correct? Say why.

6. Is $3(4 + 2) - 5 = 13$ correct? Say why.

7. Evaluate:

$$3^2 + 4 \times 5 - 6.$$

8. Add brackets to make $6 + 2 \times 5$ equal 40.

9. Evaluate: $5 + 3^2$.

GEMA (formerly BEDMAS) – Answers



1. 4

2. 14

3. 27

4. 16

5. Yes:
 $2+6/3*4=2+2*4=10$

6. Yes: $3*6-5=18-5=13$

7. 11

8. $(6+2)*5=40$

9. 14

Push Tasks



10. Evaluate:
 $2(3 + (4 - 1)^2)$.

11. Evaluate:
 $(2 + 4)^2 - 3 \times 5$.

12. Evaluate:
 $48 \div (3 + 1)^2$.

13. When $p = 5$, find
 $2(p - 1) + 3$.

14. When $m = 3$, find
 $m^2 + 2(m + 1)$.

15. When $n = 2$, find
 $3^n + 4n$.

16. Add brackets to
make $8 - 2 \times 3 + 1$
equal 19.

17. Add brackets to
make $12 \div 3 + 1$ equal
3.

18. Spot the mistake:
 $4 + 2^2 \times 3 = 36$.

GEMA (formerly BEDMAS) – Answers



10. 22

11. 21

12. 3

13. 11

14. 20

15. 17

16. $(8-2)*3+1=19$

17. $12/(3+1)=3$

18. $4 + 2^2 \times 3 = 16$ **not**
36

Push Tasks



19. A game score uses $2w + 3b$. Find it when $w = 4$, $b = 5$.

20. A rectangle has sides $3 + 2$ and $7 - 4$. Find area.

21. A shop sells 3 packs of 4 pens and 2 loose pens. Find the total.

22. Evaluate:
 $(9 - 3) \times (2 + 1) + 4$.

23. Evaluate:
 $2^3 + 3^2 - 5$.

24. Evaluate:
 $4(10 \div 5 + 2)$.

25. Which is greater:
 $2 + 5 \times 3$ or
 $(2 + 5) \times 3$?

26. Evaluate:
 $18 \div 3(2 + 1)$ using
left-to-right.

27. Write a short rule
for GEMA.

GEMA (formerly BEDMAS) – Answers



19. 23

20. 18

21. 14

22. 19

23. 12

24. 24

25. $(2+5)*3=21$

26. $18/3(2+1)=18$

27. GEMA: Grouping
Exp Mult/Div Add/Sub