

WA5MNAUE1

Understanding equalities and inequalities

Core + Challenge

NAPLAN-style

Equal or Not Equal? — Marking Key

I can complete and check number sentences using $=$, $\neq$, $<$ and $>$, and explain my reasoning.

For tutors and parents. Award method marks for correct working even if the final answer is wrong.

Marks summary

A Warm up: 16 B Practise: 21 C Think it through: 10 D Challenge: 9 **Total: 56**

Gold shading in this key shows what the child should have shaded or drawn. Accept any correct arrangement unless the question fixes it.

A

Warm up answers

/ 16 marks

Q	Answer	Model answer / notes	Marks
1	6	 $9 + 7 = 16$ and $6 + 10 = 16$.	1
2	10	$5 \times 6 = 30$ and $10 \times 3 = 30$.	1
3	20	$48 \div 6 = 8$ and $20 - 12 = 8$.	1
4	9	$25 + 20 = 45$ and $9 \times 5 = 45$.	1
5	14	$70 - 14 = 56$ and $8 \times 7 = 56$.	1
6	9	$72 \div 9 = 8$ and $4 + 4 = 8$.	1
7	$7 \times 8 = 50 + 6$	$56 = 56$.	1
8	$45 \div 5 < 3 \times 4$	$9 < 12$.	1
9	$120 - 35 > 80 + 3$	$85 > 83$.	1
10	$9 \times 7 < 8 \times 8$	$63 < 64$.	1
11	$100 \div 4 = 5 \times 5$	$25 = 25$.	1
12	$6 \times 12 > 80 - 9$	$72 > 71$.	1
13	$8 \times 5 = 4 \times 10$	Left 40, right 40.	1
14	$56 \div 7 \neq 2 \times 5$	 Left 8, right 10.	1

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Q	Answer	Model answer / notes	Marks
15	$33 + 19 = 60 - 8$	Left 52, right 52.	1
16	$9 \times 9 \neq 80 + 2$	Left 81, right 82.	1

B Practise *answers and working*

/ 21 marks

Q	Answer	Working / sample response	Marks
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a)

b)

1 a) 225 b) 4
2

a) $250 + 175 = 425$, and $225 + 200 = 425$.

b) $8 \times 25 = 200$, and $4 \times 50 = 200$.

1 mark for each correct number.

2 True, False, False

Statement	T / F	Made true
$36 + 47 = 83$	True	(no change)
$9 \times 12 = 100 + 2$	False	$9 \times 12 = 108$
$150 \div 3 \neq 5 \times 10$	False	$150 \div 3 = 5 \times 10$

3

$36 + 47 = 83$, so it is true.

$9 \times 12 = 108$, not 102. False. Correct: $9 \times 12 = 108$ (or $9 \times 12 \neq 100 + 2$).

$150 \div 3 = 50$ and $5 \times 10 = 50$, so they **are** equal. False. Correct: $150 \div 3 = 5 \times 10$.

1 mark for each fully correct row. Accept any correct change.

3 $3 \times 4 > 2 \times 5$; No

Mia: $3 \times 4 = \$12$. Leo: $2 \times 5 = \$10$.

$3 \times 4 > 2 \times 5$ (or $3 \times 4 \neq 2 \times 5$), so Mia is wrong: she spent \$2 more.

1 mark: a correct number sentence ($>$, $\neq$ or $<$ the other way round).

1 mark: No, with \$12 and \$10.

2

4 a) 5 b) any two from 0 to 29 c) 36

a) $5 \times 7 = 35 < 40$, but $6 \times 7 = 42$ is too big. So 5.

b) $90 - 30 = 60$ is not more than 60, so the number must be less than 30.

c) $6 + 3 = 9$, and $36 \div 4 = 9$.

1 mark each part.

3

5 ■ = 9, ● = 6

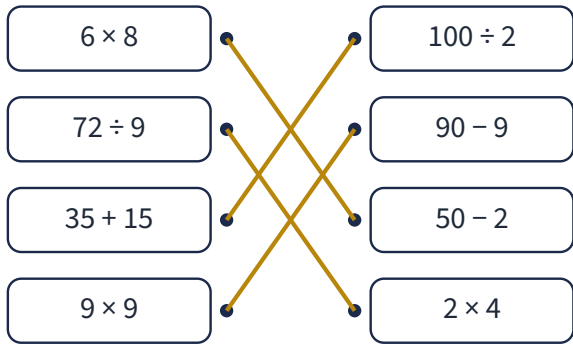
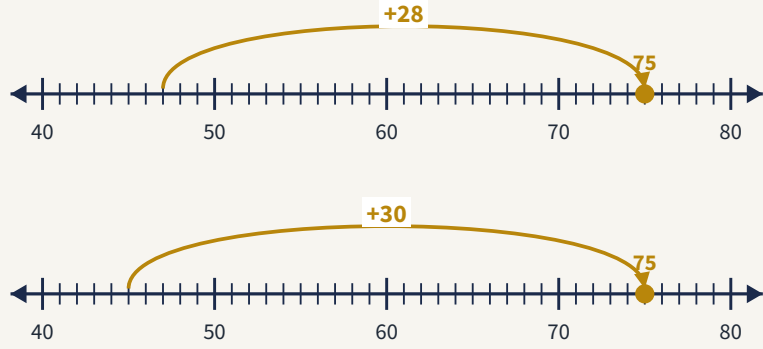
Scale 1: four ■ make 36, and $36 \div 4 = 9$. So ■ = 9.

Scale 2: $5 \times 3 = 15$, so $9 + \bullet = 15$ and $\bullet = 6$.

1 mark for each value.

2

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Q	Answer	Working / sample response	Marks
6	See lines	 $6 \times 8 = 50 - 2 = 48$; $72 \div 9 = 2 \times 4 = 8$; $35 + 15 = 100 \div 2 = 50$; $9 \times 9 = 90 - 9 = 81$. 2 marks: all four. 1 mark: two or three.	2
7	Both land on 75: =	 47 + 28: jump from 47 to 75 (for example, + 3 to 50, then + 25). 45 + 30: jump from 45 to 75. Both land on 75, so $47 + 28 = 45 + 30$. 1 mark: both jumps land on 75. 1 mark: =.	2
8	a) 9 b) $48 + 17 = 65$	a) 7 9 12 63 b) $5 \times 8 < 36$ $63 \div 7 > 10$ $48 + 17 = 65$ $100 - 38 > 70$ a) $84 - 21 = 63$, and $7 \times 9 = 63$. b) $5 \times 8 = 40$ (not < 36); $63 \div 7 = 9$ (not > 10); $48 + 17 = 65$ is true; $100 - 38 = 62$ (not > 70). 1 mark each.	2
9	a) $4 \times 6 = 3 \times 8$ b) $3 \times 8 < 5 \times 5$	a) $4 \times 6 = 24$ and $3 \times 8 = 24$, so $4 \times 6 = 3 \times 8$. b) $3 \times 8 = 24$ and $5 \times 5 = 25$, so $3 \times 8 < 5 \times 5$ (or $5 \times 5 > 3 \times 8$). 1 mark: $4 \times 6 = 3 \times 8$. 1 mark: both values 24 shown. 1 mark: $3 \times 8 < 5 \times 5$.	3

C

Think it through *sample answers and criteria*

/ 10 marks

Q	Answer	Working / sample response	Marks
1	No, it is 7	The left side is 13, so the right side must also be 13. $\square + 6 = 13$, so the box is 7. Tom wrote the answer to $8 + 5$ instead of balancing both sides ($13 + 6 = 19$, not 13). <i>1 mark: No / 7.</i> <i>1 mark: explains both sides must have the same value.</i>	2
2	True	40 is 2 more than 38, and 25 is 2 less than 27. Moving 2 from one number to the other keeps the total the same, so it is true. <i>1 mark: True.</i> <i>1 mark: explains the 2 moved from 27 to 38 (compensation). Working out both sides (65) earns 1 mark only.</i>	2
3	Always	Always Sometimes Never Example: $10 + 5 = 15$ is true. Take 3 from both sides: $10 + 5 - 3 = 12$ and $15 - 3 = 12$. Still equal. Both sides had the same value, so they still match after the same change. <i>1 mark: Always.</i> <i>1 mark: a correct example or explanation.</i>	2
4	7×5	$2 \times 18 = 36$, $6 \times 6 = 36$ and $45 - 9 = 36$. $7 \times 5 = 35$, so it is the only one not equal to 36. <i>1 mark: 7×5.</i> <i>1 mark: shows the other three are 36.</i>	2
5	Sharing among fewer gives more each	Both share the same number, 120. Sharing between 4 gives bigger shares than sharing between 5, so $120 \div 4$ is greater. <i>1 mark: same amount shared.</i> <i>1 mark: fewer groups means bigger groups.</i>	2

D

Challenge *solutions and criteria*

/ 9 marks

Q	Answer	Working / sample response	Marks
1	$\bullet = 6$, $\blacktriangle = 12$, $\blacksquare = 17$	Scale 1: $\blacktriangle$ is the same as two $\bullet$. Scale 2: $\blacktriangle + \bullet = 18$, so three $\bullet$ make 18 and $\bullet = 6$. Then $\blacktriangle = 12$. Scale 3: $\blacksquare - 12 = 5$, so $\blacksquare = 17$. <i>1 mark for each value.</i>	3

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Q	Answer	Working / sample response	Marks
2	a) $2 \times 6 = 3 \times 4$ b) No	a) $2 \times 6 = 12$ and $3 \times 4 = 12$ (the numbers can be in any order). b) The three ways to pair them give $2 + 3 = 5$ and $4 + 6 = 10$, $2 + 4 = 6$ and $3 + 6 = 9$, $2 + 6 = 8$ and $3 + 4 = 7$. None are equal. (Another reason: $2 + 3 + 4 + 6 = 15$ is odd, so it cannot split into two equal halves.) <i>1 mark: a correct multiplication sentence.</i> <i>1 mark: No.</i> <i>1 mark: checks all three pairings or explains that 15 is odd.</i>	3
3	6, 7, 8, 9	$6 \times \square > 30$: the number must be more than 5 ($6 \times 5 = 30$ is not greater). $\square \times 4 < 40$: the number must be less than 10 ($10 \times 4 = 40$ is not less). So 6, 7, 8 and 9. <i>1 mark: more than 5.</i> <i>1 mark: less than 10.</i> <i>1 mark: exactly 6, 7, 8, 9.</i>	3