



READING THE GRID · GRADE 4 · 4.G.A.2

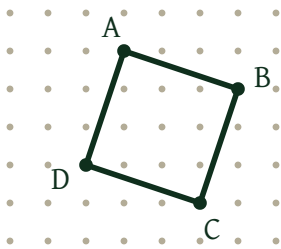
Count the Steps

Name _____ Date _____ Correct _____ / 20

1 Write the step count, then rule on it - not one of these sits straight on the page

A step count says how far you travel from one lettered corner to the next: how far across, then how far up or down. Count the gaps between the dots, not the dots themselves. Write both step counts, then accept or turn down the statement under them.

1. (a)



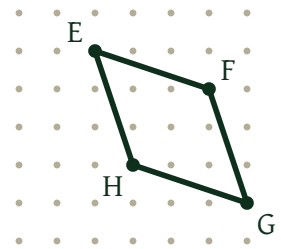
AB goes _____ AD goes _____

AB and AD meet at a square corner.

true

false

2. (b)



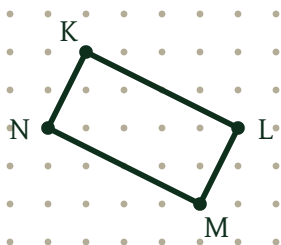
EF goes _____ FG goes _____

EF and FG meet at a square corner.

true

false

3. (c)



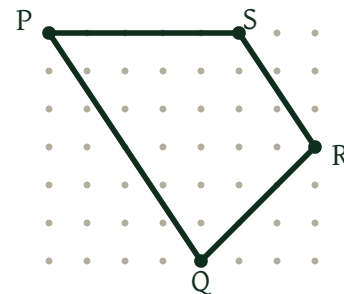
KL goes _____ NM goes _____

KL and NM run the same way.

true

false

4. (d)



PQ goes _____ SR goes _____

PQ and SR run the same way.

true

false

Roots of Reason

Count the Steps · 4.G.A.2

Name _____ Date _____

2 Say why - *the numbers on their own do not settle it*

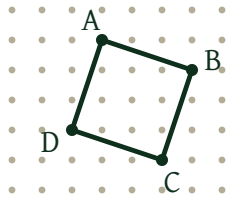
5. Both pairs in 1 and 2 use the numbers 3 and 1. One pair meets square and one does not. Say what is different.

6. In 4, PQ takes twice the steps SR takes, so they are nothing like the same size. Say why they still run the same way.

3 Name it, then fold it - *fold it so one piece lands exactly on the other*

quadrilateral four straight sides · **parallelogram** two pairs parallel · **rectangle** four square corners · **rhombus** four sides equal · **square** both of the last two at once

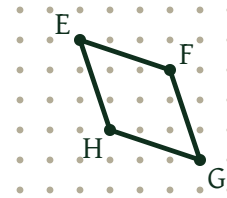
7. (a)



closest name _____

fold lines drawn, and how many _____

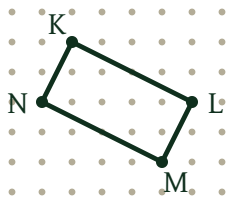
8. (b)



closest name _____

fold lines drawn, and how many _____

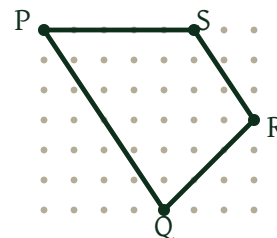
9. (c)



closest name _____

fold lines drawn, and how many _____

10. (d)



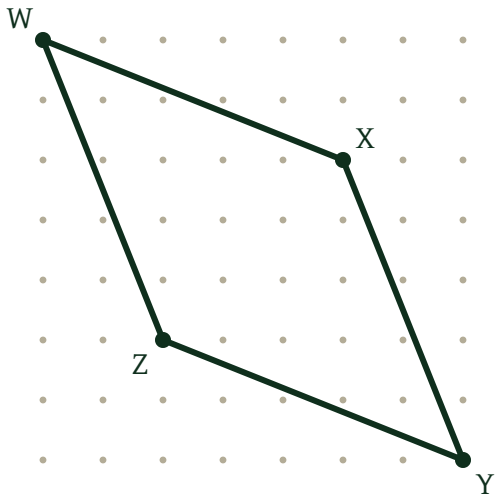
closest name _____

fold lines drawn, and how many _____

Roots of Reason

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Name _____ Date _____

4 One figure, everything at once - draw on WXYZ for 15 and 16, and nothing on it runs along the grid**11.** Write the step count for each of these two sides.

WX goes _____

ZY goes _____

12. Write the angle at X using three letters.

angle _____

13. By its opening, the angle at X is☐ acute☐ right☐ obtuse**14.** Somewhere on the outline WXYZ there is a square corner.☐ true☐ false**15.** Draw WY and XZ. Where they cross, the corner is square.☐ true☐ false**16.** Draw every fold line WXYZ has.

how many _____

17. Write the closest name WXYZ answers to, then one wider name that is also true of it.

closest name _____

wider name _____

18. Triangle WXZ on its own: by its sides _____ and by its angles _____**19.** Triangle WXY on its own: by its sides _____ and by its angles _____**20.** Not one line on this figure runs along the grid lines, and you had no folded corner to test with. Say how the two step counts in 15 told you the diagonals meet square on.



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Count the Steps

Write the step count, then rule on it

1. AB is *3 right and 1 down*, AD is *1 left and 3 down*, true 2. EF is *3 right and 1 down*, FG is *1 right and 3 down*, false
3. KL is *4 right and 2 down*, NM is *4 right and 2 down*, true 4. PQ is *4 right and 6 down*, SR is *2 right and 3 down*, true

Say why

5. In 1 the two numbers swap and one of the directions turns the other way, right becoming left. In 2 they swap and both still run to the right, so the second side leans the way the first one does instead of crossing it.
6. Which way a side runs is how far down it goes for every step across, not how far it goes in total. PQ drops 6 in 4 across and SR drops 3 in 2 across, which is 3 down for every 2 across in both.

Name it, then fold it

7. (a) *square*, 4 fold lines: two corner to corner and two through the middles of opposite sides 8. (b) *rhombus*, 2, both corner to corner
9. (c) *rectangle*, 2, both through the middles of opposite sides 10. (d) *quadrilateral*, 0

One figure, everything at once

11. WX is *5 right and 2 down*, ZY is *5 right and 2 down* 12. *angle WXY* or angle YXW 13. *obtuse* 14. *false*
15. *true*. WY is 7 right and 7 down, XZ is 3 left and 3 down. 16. *2*, the two diagonals 17. *rhombus*, then parallelogram or quadrilateral
18. WXZ is *isosceles* and *acute* 19. WXY is *isosceles* and *obtuse*
20. Both step counts are built from one number used twice, and one of the two directions turns the other way. That is the same pattern as 1, and it is what a square corner looks like in step counts.

Question 7 catches a reader who has only tried the folds running square to a figure's edges: they report 2 where the answer is 4. Figure (d) reaches no name past quadrilateral, and it has no fold line. Trapezoid is off the name list on purpose, because the two definitions in wide use disagree about which figures it covers.