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MATHEMATICS WORKSHEET

Logical Reasoning

Chapter: Mathematical Reasoning • Level ★★ ★ •
Time: 30 min

SCORE

___ / 20

Name _____ Class _____ Date _____

AFTER THIS WORKSHEET YOU CAN

- ✓ Judge the validity of a syllogism. ✓ Use the Pythagorean theorem in distance puzzles.
- ✓ Reason about directions. ✓ Reason about family relationships.



Section A • Concept Check

• BEGINNER

$4 \times 1 = 4$

1 All squares are rectangles; all rectangles have 4 sides. So all squares have 4 sides. Valid?

- ☐ A. Yes ☐ B. No ☐ C. Only sometimes
☐ D. Cannot tell

3 A man walks 6 km North then 8 km East. His straight-line distance from the start is:

- ☐ A. 10 km ☐ B. 14 km ☐ C. 2 km ☐ D. 48 km

2 Some fruits are sweet; some sweet things are candies. So some fruits are candies. Valid?

- ☐ A. Yes ☐ B. No ☐ C. Only sometimes
☐ D. Always

4 If P is Q's mother and Q is R's mother, then P is R's:

- ☐ A. grandmother ☐ B. mother ☐ C. sister
☐ D. aunt



Section B • Problem Solving

• INTERMEDIATE

$2 + 3 \times 3 = 11$

5 If all A are B and all B are C, then all A are _____

6 Walking 6 km north then 8 km east gives a straight-line distance of _____ km.

7 All squares are rectangles; all rectangles have 4 sides. Conclusion: all squares have 4 sides. Valid?

8 Some fruits are sweet; some sweet things are candies. Conclusion: some fruits are candies. Valid?

9 A man walks 6 km North then 8 km East. How far is he from the start (straight line)?



Section C • Challenge

• CHALLENGE

5

10 If P is Q's mother and Q is R's mother, what is P to R?

Reflection — the most useful thing I learned: _____

A ___/4 B ___/11 C ___/5 Total ___/20

Teacher's Signature

Parent's Signature

1-A 2-B 3-A 4-A | 5 C 6 10 7 = Yes, valid 8 = No, invalid 9 = 10 km ($\sqrt{6^2+8^2}$) | 10
= P is R's grandmother