Lesson 1.4 Practice: The Laws of Logic

School Launch · Geometry · Unit 1: Foundations: Logic and the Axiomatic Method · Worksheet A

Calculator allowed

Name _____ Date _____ Score _____ / 10

Show your work under each problem, one step per line, and check your answer. Word problems: name the unknown, write the equation, solve, and answer in a sentence with units.

1. Given: If a number is divisible by 9, it is a multiple of 9. 27 is divisible by 9. What can you conclude, and which law is used? EASY

2. Given: If a number is divisible by 2, it is a multiple of 2. 16 is divisible by 2. What can you conclude, and which law is used? EASY

3. Given: If a number is divisible by 6, it is a multiple of 6. 24 is divisible by 6. What can you conclude, and which law is used? EASY

4. Given: If p, then q. If q, then r. Use the Law of Syllogism to write the conclusion, then test it with p: "$x = 8$", q: "$2x = 16$", r: "$2x + 1 = 17$". MEDIUM

5. Given: If p, then q. If q, then r. Use the Law of Syllogism to write the conclusion, then test it with p: "$x = 5$", q: "$2x = 10$", r: "$2x + 1 = 11$". MEDIUM

6. Given: If p, then q. If q, then r. Use the Law of Syllogism to write the conclusion, then test it with p: "$x = 2$", q: "$2x = 4$", r: "$2x + 1 = 5$". MEDIUM

7. Given: If p, then q. If q, then r. Use the Law of Syllogism to write the conclusion, then test it with p: "$x = 6$", q: "$2x = 12$", r: "$2x + 1 = 13$". MEDIUM

8. Given: If p, then q. If q, then r. Use the Law of Syllogism to write the conclusion, then test it with p: "$x = 7$", q: "$2x = 14$", r: "$2x + 1 = 15$". HARD

9. Given: If p, then q. If q, then r. Use the Law of Syllogism to write the conclusion, then test it with p: "$x = 4$", q: "$2x = 8$", r: "$2x + 1 = 9$". HARD

10. Given: If p, then q. If q, then r. Use the Law of Syllogism to write the conclusion, then test it with p: "$x = 3$", q: "$2x = 6$", r: "$2x + 1 = 7$". HARD