Course: SAT ACT Prep | **Lesson Number:** **2**

Subject: Mathematical Reasoning | **Reference Number:** **1001-8**

Topic: Arithmetic

Subtopic: Solving with Substitution & Conceptually | *https://youtube.com/c/MrMattTheTutor*

Document: Quick Drill B Resource

1) If M and N are positive prime integers greater than 2 and Q is an even integer, which of the following statements is/are true?

   I. $(M+N)(2+M+N)$ is an odd integer

   II. $(3N+M)^2+(3+2N)^2$ is an odd integer

   III. $(5+Q+M)-(3M+N)^3$ is an even integer

   a) Statements I and II only

   b) Statements I and III only

   c) Statements II and III only

   d) Statements I, II, and III

2) If M and N are positive prime integers greater than 2 and Q is an even integer, which of the following statements is/are true?

I. $(M + N - Q) + (2 + N + Q)$ is an odd integer

II. $(Q^2 + M^2)(2 + Q + N)^2$ is an odd integer

III. $(5 + M + Q)(4 - M - N)^3$ is an odd integer

a) Statements I and II only

b) Statements I and III only

c) Statements II and III only

d) Statements I, II, and III

3) If M and N are positive prime integers greater than 2 and Q is an even integer, which of the following statements is/are true?

I. $(QNM)^3(5QN)^2$ is an even integer

II. $(3 + M)(2 + Q)^2 + (6N)^2$ is an even integer

III. $(5MQ)^2(3 + M + N)^3$ is an even integer

a) Statements I and II only

b) Statements I and III only

c) Statements II and III only

d) Statements I, II, and III

4) If M and N are integers less than zero and Q is an integer greater than zero, which of the following statements is/are true?

I. $(MNQ)^5 \times (2MQ)^3$ is a negative integer

II. $(3NQ)^7 \div -(5NM)^2$ is a negative integer

III. $(-2MN)^2 \times (-3MNQ)^7$ is a negative integer

a) Statements I and II only

b) Statements I and III only

c) Statements II and III only

d) Statements I, II, and III

5) If M and N are integers less than zero and Q is an integer greater than zero, which of the following statements is/are true?

I. $(MQN)^3 \times -(3MQ)^2$ is a negative integer

II. $(3MN)^2 \div (5NQM)^3$ is a positive integer

III. $(-2NQ)^2 \times (-3MNQ)^3$ is a negative integer

a) Statements I and II only

b) Statements I and III only

c) Statements II and III only

d) Statements I, II, and III

6) If M and N are integers less than zero and Q is an integer greater than zero, which of the following statements is/are true?

I. $(MQ)^2 \times -(MN)^3$ is a negative integer

II. $-(-3MN)^3 \div -(-5QM)^2$ is a negative integer

III. $(2NQ)^8 \times (-3NQ)^6$ is a negative integer

a) Statements I and II only

b) Statements I and III only

c) Statements II and III only

d) Statements I, II, and III