

**Kumon Math Challenge – Sample Questions**  
**Grade 9**

**Solve for x.**

1.  $-\frac{3}{4}x + \frac{1}{6} = -\frac{1}{3}x + 2$

A.  $x = -\frac{16}{5}$

B.  $x = -\frac{22}{5}$

C.  $x = \frac{12}{5}$

D.  $x = \frac{23}{4}$

**Simplify the following.**

2.  $3x^5 \times 9x^{-5} \div 6x^{-1} =$

A.  $\frac{9x}{2}$

B.  $\frac{3x}{2}$

C.  $\frac{9x}{4}$

D.  $\frac{5x}{6}$

3. Find the vertex of the parabola:  
 $y = -6x^2 + 12x + 10$

A.  $(-1, 16)$

B.  $(1, -8)$

C.  $(0, 10)$

D.  $(1, 16)$

**Factor the following**

4.  $(x + y)^2 - 5(x + y) - 14 =$

A.  $(x + y - 7)(x + 2y + 2)$

B.  $(x + y - 7)(x + y + 2)$

C.  $(x + y + 7)(x - y - 2)$

D.  $(x + y - 2)(x + y + 7)$

5. A telephone exchange is represented by the first 3 digits of a phone number, for example 394 - . How many different phone numbers can be created in a single telephone exchange if four numbers must follow the telephone exchange?

A. 100,000 phone numbers

B. 110,000 phone numbers

C. 10,000 phone numbers

D. 50,000 phone numbers

**Simplify the following equation.**

6.  $(5 \log_8 3)(\log_8 2)(\log_3 8) =$

A.  $5 \log_8 48$

B.  $\frac{5}{3}$

C.  $5 \log_{24} 48$

D. 5