

Kumon Math Challenge – Sample Questions
Grade 10

Simplify the following.

1. $\frac{x^2 - 25}{x^2 - 7x + 10} =$

- A. $\frac{x - 5}{x - 2}$
- B. $\frac{x + 4}{x + 2}$
- C. $\frac{x + 5}{x - 2}$
- D. $\frac{2x + 3}{x - 2}$

Solve the following for x .

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

- A. $x = 3 \pm 2\sqrt{4}i$
- B. Not possible
- C. $x = 3 \pm 4\sqrt{2}i$
- D. $x = 4 \pm 2\sqrt{2}i$

Simplify the following:

3. $(-8)^{\frac{1}{3}} =$

- A. 2
- B. $-\frac{1}{3}$
- C. $-\frac{8}{24}$
- D. -2

4. Two pipes, Pipe A and Pipe B, are used to fill a water tank. The empty tank is filled in 10 hours with both pipes running the whole time, together. If Pipe A is used alone for 6 hours and then turned off, Pipe B can then be used for 18 hours to fill the tank. How long would it take each pipe to fill the tank on its own?

- A. Pipe A: 15 hours; Pipe B: 30 hours
- B. Pipe A: 12 hours; Pipe B: 22 hours
- C. Pipe A: 14 hours; Pipe B: 38 hours
- D. Pipe A: 15 hours; Pipe B: 20 hours

5. What are the chances of rolling the following sequence of numbers with a single die:

2, 6, an even number, 3, an odd number, then a 6 or a 5.

- A. 1 in 22,592
- B. 1 in 2,592
- C. 1 in 25,592
- D. 1 in 222,592

6. A, B and C are angles in a triangle. If $\sin A = 1/2$ and $\sin B = 1$, what is the measurement in degrees of C?

- A. 40 degrees
- B. 50 degrees
- C. 60 degrees
- D. 70 degrees