Skills and Sample Questions for the No-Calculator Part of the Math Test

Here are some recommend skills areas that are likely to show up in the 5 test questions for which you cannot use a calculator.

- Comparing positive and negative numbers, with or without a number line. (Could include decimals and fractions.)
- Basic number skills such as distributive properties and multiples and factors (such as, least common multiple, LCM, or greatest common factor, GCF)
- Rules of exponents, including negative exponents, fractional exponents and multiple operations with exponents
- Absolute value and distance between numbers on the number line
- Order of operations with decimal numbers, fractions, mixed numbers or negative numbers
- Computations and numerical expressions with squares and square roots with rational numbers; non-perfect square roots. Example: $\sqrt{12} = \sqrt{(4)(3)} = 2\sqrt{3}$)
- Computations and numerical expressions with cubes and cube roots with rational numbers

- How to determine when a numerical expression is undefined (Examples: division by zero, square root of a negative number)

NOTE: a _rational number_ is
• Any number that can be expressed as the quotient or fraction, a / b of two integers (the numerator "a" and a non-zero denominator "b".)
• Since "b" may be equal to 1, every integer is also a rational number

Sample no-calculator questions

1   What is the value of $\sqrt[3]{-27}$?

    a.   Undefined
    b.   3
    c.   -3
    d.   9

2 $12\dfrac{5}{6} - 1\dfrac{1}{2} = ?$

3 For what value of x is this expression undefined?

$$\frac{1}{\sqrt[2]{x}}$$

    a.   4
    b.   100
    c.   - 9
    d.   9

4 What is the value of $x^{-\frac{1}{2}}$ when x = 16?

5. What is the approximate distance between points A and B on this number line?
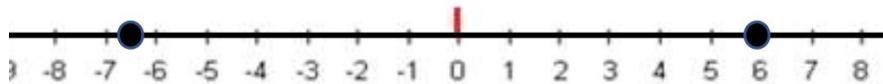
    a.   12
    b.   13
    c.   6
    d.   12.5

6 Place these fractions in order from largest to smallest:

$$\frac{2}{3} \quad \frac{1}{6} \quad \frac{4}{9} \quad \frac{1}{12} \quad \frac{7}{18}$$

3

7   Evaluate this expression:

$$2\frac{3}{4}(16 \div 8)^{-2} - 1\frac{3}{4}$$

8        $-\sqrt{125} = ?$

   a.   25
   b. $-5\sqrt{5}$
   c.   Undefined
   d.   11

9   Solve for x: $12(x - 2) < 24$

      a. $X < 0$
      b. $X > 0$
      c. $X < 12$
      d. $X < 4$

10   Which of the following is a graph of the inequality $-2 \le x < 4$?

A.
   -5 -4 -3 -2 -1 0 1 2 3 4 5

B.
   -5 -4 -3 -2 -1 0 1 2 3 4 5

C.
   -5 -4 -3 -2 -1 0 1 2 3 4 5

D.
   -5 -4 -3 -2 -1 0 1 2 3 4 5
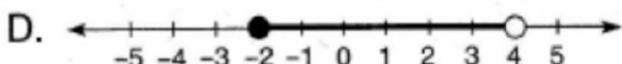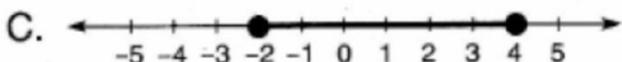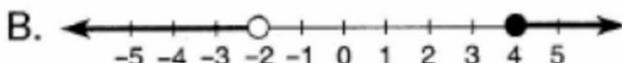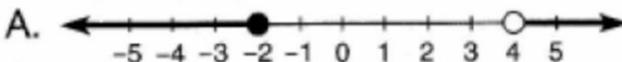
11 Armando borrows $2,000 for 8 months at 10% interest. What is the amount he will have paid back at the end of the loan period? (Round your answer to the nearest penny.)

12 For which of the following values is this expression undefined?

$$\frac{x^2 - 5x + 6}{x - 3}$$

    a. 3
    b. 9
    c. 6
    d. 0

Answers:

1. c
2. $11\frac{1}{3}$
3. c
4. 0.25
5. d
6. 2/3, 4/9, 7/18, 1/6, 1/12
7. $-1\frac{1}{16}$

8. b
9. d
10. D
11. $2,133.33
12. a

11/06/25