Remember: the Answer Keys for the preceding drills can be found at the end of this chapter after the Summary page.

Let's use our knowledge of discriminants on this problem.

35. How many real roots does the equation $3x^2 - 4x + 2 = 0$ have?

A. None
B. One
C. Two
D. Three
E. Four

Here's How to Crack It

Since the question asks for real roots, use the discriminant. For this quadratic, $a = 3$, $b = -4$, and $c = 2$. Plugging those numbers into the discriminant gives $(-4)^2 - 4(3)(2) = 16 - 24 = -8$. The value of the discriminant is negative, so there are no real roots for this quadratic equation, and the answer is (A).

FUNDAMENTALS VOCABULARY DRILL

Write out the definitions for each of the following math terms. If possible, write them in your own words.

Absolute Value:

Consecutive:

Decimal:

Difference:

Digits:

Discriminant:

Distinct:

Divisible:

Even:

Exponent/Power:

Factor:

FOIL:

Fraction:

Greatest Common Factor:

Imaginary:

Integers:

Irrational:

Least Common Multiple:

Multiple:

Negative:

Number:

Odd:

Opposite:

Order of Operations:

Positive:

Prime:

Product:

Quadratic Formula:

Quotient:

Real:

Radical:

Rational:

Reciprocal:

Remainder:

Roots (solutions, *x*-intercepts):

Scientific Notation:

Sum:

Fundamentals Drill

In the drill below, you will find questions focusing only on fundamental skills. Before you start, take a few moments to go back over the review material and techniques. Answers are in Chapter 25.

1. What is the product of the distinct prime factors of 54?

A. 2
B. 3
C. 6
D. 11
E. 54

2. If x is the least odd prime number and y is the least positive integer multiple of 10, what is the positive difference between x and y?

F. 3
G. 7
H. 11
J. 15
K. 17

3. For all x and y, $(x^{-1}y^{-3})^{-2}(x^4y^7)^3 = ?$

A. $x^{10}y^{15}$
B. x^5y^{10}
C. x^3y^4
D. $x^{14}y^{27}$
E. $x^{-6}y^{18}$

4. In the complex numbers, where $i^2 = -1$, which of the following is equal to the result of squaring the expression $(i + 4)$?

F. $4i$
G. $16i$

H. $15 + 8i$
J. $16 + i$
K. $17 - 18i$

5. What is the least possible sum of three distinct prime numbers between 10 and 20?

A. 30
B. 39
C. 41
D. 45
E. 60

6. $\frac{9.1\times10^{-7}}{1.3\times10^{3}} =$

F. 7.0×10^{-10}
G. 7.0×10^{-4}
H. 7.0×10^{4}
J. 7.8×10^{-10}
K. 7.8×10^{-4}

7. The graph of which of the following does not intersect the x-axis?

A. $-x^2 + 5x - 1 = 0$
B. $x^2 + 6x - 9 = 0$
C. $x^2 - 3x + 10 = 0$
D. $2x^2 + 3x - 11 = 0$
E. $3x^2 + 12x + 12 = 0$