1. Given that the value of x is between 0 and 5, but not equal to either 0 or 5, which statement is true?
a) $0 \leq x^2 \leq 5$
b) $0 < x^2 < 25$
c) $0 \leq x^2 \leq 25$
d) $x^2 \leq 25$

2. A complex right triangle has orthogonal sides of length (6 + i3) and (4 + i$\sqrt{3}$). The hypotenuse has the length

a) $\sqrt{(40 + 4i(9 + 2\sqrt{3}))}$
b) $\sqrt{(40 + i(36 + 2\sqrt{3}))}$
c) $(40 + 4i(9 + 2\sqrt{3}))$
d) $(40 + i(36 + 2\sqrt{3}))$

3. A large L-shaped field is 400 m long in its longest side, and 150 m wide at its widest point. The opposite parallel sides are only 1/5 as long. The total perimeter of the field is

a) 6000 m
b) 900 m
c) 1200 m
d) 1100 m

4. The total perimeter of an L-shaped field is 800 feet. The longest side is 300 feet, and the longest width is 100 feet. The shorter sides are 50 feet and 50 feet respectively. The total area of the field is

a) 22,500 square feet
b) 30,000 square feet
c) 17,500 square feet
d) 45,000 square feet

5. If $2^n = 6$ and $2^8 = 256$, then $2^8 \times 2^n =$

a) 262
b) 2^{n+8}
c) 2^{8n}
d) $2^n + 6$

6. The series sum of 1/n for integer values of n such that $1 \leq n \leq 6$ is

a) 2 1/2
b) 2 9/20
c) 2 5/6
d) 2 3/20

7. A certain special die has eight sides instead of six. The probability of rolling an odd number is

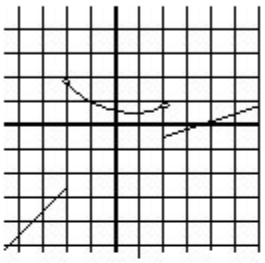
a) the same as for a six-sided die
b) one-third more than for a six-sided die
c) one-third less than for a six-sided die
d) 25% greater

8. The series sum of $(n + 1/n)$ for integer values $1 \leq n \leq 4$ is

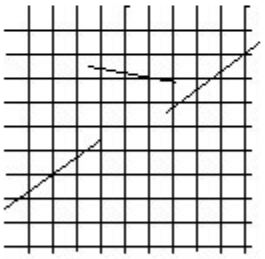
a) 11
b) an irrational real number
c) a complex number
d) an integer

9. A certain property has the linear value corresponding to $d = (5t - 3)$ for $t \leq -2$, to the quadratic relationship $d = t^2 - t + 3$ for $-2 \leq t < +2$, and to the linear value $d = (5t/3 - 6)$ for $t \geq +2$. A graph of its behavior is

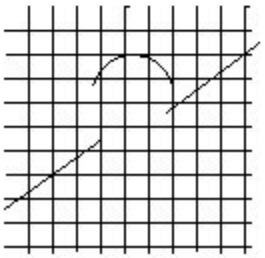
a)



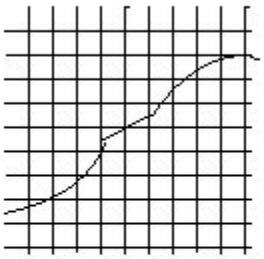
b)



c)

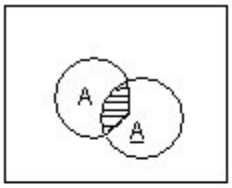


d)

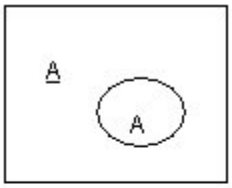


10. The probability that an event A will not occur, 1-A, is represented in a Venn diagram as

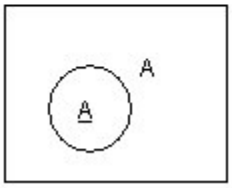
a)



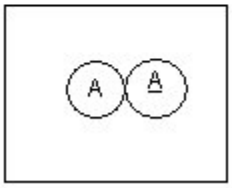
c)



b)



d)



CLEP College Math Practice Question Answer Key

1. The correct answer is B. Since x is not equal to either 0 or 5, the value of x^2 also cannot be equal to either 0 or 25. Of the four possible answers, a, c and d have conditions of equality with the forbidden values.

2. The correct answer is A. Because the complex triangle is a right triangle, the Pythagorean Theorem applies.

$h^2 = x^2 + y^2 = (6 + i3)^2 + (4 + i\sqrt{3})^2 = (36 + i36 - 9) + (16 + i8\sqrt{3} - 3)$
$= (27 + i36) + (13 + i8\sqrt{3}) = 40 + i(36 + 8\sqrt{3}) = 40 + 4i(9 + 2\sqrt{3})$
Therefore, $h = \sqrt{(40 + 4i(9 + 2\sqrt{3}))}$

3. The correct answer is D. The perimeter is the total length of the outside edge of the field. Because the sides of the field are orthogonal and parallel, the indented sides do not change the length of the boundaries of the field, only their relative positions.

4. The correct answer is C. This may be solved in two ways, each of which regards the entire field as being constructed from two smaller fields. In the first, the area of a smaller field that is 250 ft X 50 ft is subtracted from the total area encompassed in 300 ft, X 100 ft:

(300 X 100) = 30,000 sq ft
(250 X 50) = 12,500 sq ft
L-shape = 17,500 sq ft

In the second, the total area of the L-shaped field is the sum of the areas of one field that is (250 ft X 50 ft, and a second field that is (50 ft X 100 ft):

(250 X 50) = 12,500 sq ft
(50 X 100) = 5000 sq ft
L-shape = 17,500 sq ft

5. The correct answer is B. The general rule for the multiplication of indices is $a^x a^y = a^{x+y}$.

6. The correct answer is B. The series expands to $1 + 1/2 + 1/3 + 1/4 + 1/5 + 1/6$
$= 1 + (3/6 + 2/6 + 1/6) + 1/4 + 1/5 = 2 + 1/4 + 1/5 = 2 + 5/20 + 4/20 = 2\ 9/20$

7. The correct answer is A. A six-sided die has an equal number of odd and even numbers on the six faces. The probability that an odd number will appear when the die is rolled is equal to the probability that an even number will appear, or 0.5. The eight-sided die also has an equal number of odd and even numbers on its eight faces. The probability that an odd number will appear when the die is rolled is therefore also equal to the probability that an even umber will appear, or 0.5.

8. The correct answer is B. The series expands to $1 + 1/1 + 2 + 1/2 + 3 + 1/3 + 4 + 1/4 =$ 12.08333,an infinitely repeating decimal value. It is therefore a real, irrational number.

9. The correct answer is A. The graph in answer A is the only one that resembles the three functions.

10. The correct answer is C. If the region within the circle is the probability of the event A, then the region outside if the circle must represent the probability of "not A". That is, of A not occurring.