

Mathematics Assessment Exam

Mathematics · Answer Key · 10 Questions

1. If $U=\{1,2,3,4,5,6\}$, $A=\{2,5,6\}$, and $B=\{1,2,3\}$, what is the set $A \cup B$?

- A) $\{1,2,3,5,6\}$**
- B) $\{2,5,6\}$
- C) $\{1,2,3\}$
- D) $\{1,2,3,4,5,6\}$

2. A bag contains 7 black balls and 3 white balls. What is the probability of selecting a white ball?

- A) 0.7
- B) 0.3**
- C) 0.5
- D) 0.1

3. What is the mode of the data set: 6, 8, 6, 5, 7, 6, 9?

- A) 5
- B) 7
- C) 6**
- D) 9

4. If an exterior angle of a regular polygon is 12 degrees, how many sides does it have?

- A) 15
- B) 20
- C) 30**
- D) 45

5. What is the sum of all probabilities in a single sample space?

- A) 0
- B) 0.5
- C) 1**
- D) 10

6. What is the result of the cartesian product $A \times B$ if $A=\{1,3\}$ and $B=\{2,4\}$?

- A) $\{(1,2),(1,4),(3,2),(3,4)\}$**
- B) $\{(1,1),(3,3),(2,2),(4,4)\}$
- C) $\{(1,2),(3,4)\}$
- D) $\{(2,1),(4,3)\}$

7. If area of triangle ABC is 256 cm squared, what is the area of a similar triangle ADE with a scale factor of 0.5?

A) 64 cm²

B) 128 cm²

C) 32 cm²

D) 512 cm²

8. Which trigonometric identity represents $\sin \theta / (1 + \cos \theta)$?

A) $(1 - \cos \theta) / \sin \theta$

B) $(1 + \cos \theta) / \sin \theta$

C) $\sin \theta / \cos \theta$

D) $\tan \theta$

9. What is the relative frequency of getting heads if a coin is tossed 150 times and heads appear 70 times?

A) 0.5

B) 0.467

C) 0.7

D) 0.533

10. The slope-intercept form of a linear equation is represented as:

A) $ax + by + c = 0$

B) $y = mx + c$

C) $x/a + y/b = 1$

D) $x \cos \alpha + y \sin \alpha = p$