

12. If a dart thrown at a 64-square checkerboard lands on the board, the probability that it lands on a black square is $\frac{?}{?}$. The probability that it lands on one of the four central squares is $\frac{?}{?}$.
13. In $\triangle ABC$, $\overline{AB} \perp \overline{BC}$, $AB = 15$, and $BC = 8$. Then the exact value of $\sin C$ is $\frac{?}{?}$.
14. A tree 5 m tall casts a shadow 8 m long. To the nearest degree, the angle of elevation of the sun is $\frac{?}{?}$. (Use the table on page 311.)
15. A trapezoid with sides 8, 8, 8, and 10 has area $\frac{?}{?}$.
16. A circle with area 100π has circumference $\frac{?}{?}$.
17. A cone with radius 9 and slant height 15 has volume $\frac{?}{?}$ and lateral area $\frac{?}{?}$.
18. A sphere with surface area $144\pi \text{ cm}^2$ has volume $\frac{?}{?}$.
19. If $B = (2, 0)$, then $D_{B, -2}: (1, 1) \rightarrow (\frac{?}{?}, \frac{?}{?})$.
- C** 20. If each edge of a regular triangular pyramid is 6 cm, then the pyramid has total area $\frac{?}{?}$ and volume $\frac{?}{?}$.
21. A plane parallel to the base of a cone and bisecting the altitude divides the cone into two parts whose volumes have the ratio $\frac{?}{?}$.

Always-Sometimes-Never Exercises

Write A, S, or N to indicate your answer.

- A** 1. Vertical angles are $\frac{?}{?}$ adjacent angles.
2. If J is a point outside $\odot P$ and \overline{JA} and \overline{JB} are tangents to $\odot P$ with A and B on $\odot P$, then $\triangle JAB$ is $\frac{?}{?}$ scalene.
3. A conclusion based on inductive reasoning is $\frac{?}{?}$ correct.
4. Two right triangles with congruent hypotenuses are $\frac{?}{?}$ congruent.
5. If the diagonals of a quadrilateral are perpendicular bisectors of each other, then the quadrilateral is $\frac{?}{?}$ a rhombus.
6. If $\triangle RST$ is a right triangle with hypotenuse \overline{RS} , then $\sin R$ and $\cos S$ are $\frac{?}{?}$ equal.
7. A circle $\frac{?}{?}$ contains three collinear points.
8. A lateral edge of a regular pyramid is $\frac{?}{?}$ longer than the slant height.
9. Transformations are $\frac{?}{?}$ isometries.
10. Under a half-turn about point O , point O is $\frac{?}{?}$ mapped onto itself.
- B** 11. If the measures of three consecutive angles of a quadrilateral are 58, 122, and 58, then the diagonals $\frac{?}{?}$ bisect each other.
12. A triangle with sides of length x , $x + 2$, and $x + 4$ is $\frac{?}{?}$ an acute triangle.
13. If \widehat{RS} and \widehat{XY} are arcs of $\odot O$ and $m\widehat{RS} < m\widehat{XY}$, then RS and XY are $\frac{?}{?}$ equal.