

## **Contoh Pertanyaan :**

1. *Knowledge of a Fact : What are the three methods of representing “2 divided by 3”?*
2. *Knowledge of a Skill : What is the first rationalizing the denominator of this fraction  $\frac{2}{\sqrt{3}}$ ?*
3. *Knowledge of a Concept : What is the definition of a mathematical operation ?*
4. *Knowledge of a Principle : What is the formula for the volume of sphere ?*
5. *Comprehension of a Fact : Why is  $x^0$  to be one when  $x$  is not equal to zero?*
6. *Comprehension of a Skill : Why is the quotient  $0.34\sqrt{9.46}$  the same as the quotient  $34\sqrt{946}$  ?*
7. *Comprehension of a Concept : Why is  $x = y$  a function while  $x^2 = y^2$  is not function ?*
8. *Comprehension of a Principle : Why is division by zero undefined ?*
9. *Application of a Fact : What is the product of  $\frac{3}{4} \times \frac{1}{3} \times \frac{0}{2}$ ?*
10. *Application of a Skill : Which is better buy, a pound of nut for \$ 1.79 Or 12 ounces of the same nut for \$1.19?*

11. *Application of a Concept : Which of these figures are rhombuses ?*
12. *Application of a Principle : Which lot contains the most land, a right triangular lot having legs 100 m and 80 m or an equilateral triangular lot 100 m on an edge ?*
13. *Analysis of a Fact : Why this statements equivalent ?  ${}^5\log 125 = 3$  and  $5^3 = 125$  .*
14. *Analysis of a Skill : Why is the first step in finding the quotient  $\frac{7}{8} \div \frac{3}{4}$  usually given  $\frac{7}{8} \times \frac{4}{3}$  ?*
15. *Analysis of a Concept : Why is every function is relation?*
16. *Analysis of a Principle : Why is every equilateral triangle also equiangular?*
17. *Synthesis of a Facts : Peggy is heavier than Mary. Mary is heavier than Susan. Who is heavier, Peggy or Susan?*
18. *Synthesis of a Skills : Which is better buy, ground beef that is 65% lean meat priced at three pounds for \$2.00 or ground beef that is 85% lean meat that cost 89 cent per pound?*
19. *Synthesis of a Concepts : Why the integers modulo 5 under addition and multiplication a field?*

20. *Synthesis of Principles : Why does the graph of  $y = x^2 - 1$  have only one critical value?*
21. *Evaluation of a Facts : After having studied the contributions of the ancient Egyptians, Greeks, and Babylonians to mathematical progress, which civilization do you think made the greatest contribution to the development of algebra?*
22. *Evaluation of Skills : Which method for solving a system of linear equations is the most useful in algebra – graphing, addition and subtraction, substitution, Cramer’s Rule ?*
23. *Evaluation of Concepts: Mathematical concepts of shape, size, length, and area can be defined using facts, and ideas from algebra or facts and ideas from geometry. Which of these methods of defining each of shape, size, length, and area are the greatest value and utility in mathematics-algebraic definitions of concepts or geometry definitions? Which type is most useful for applications of mathematics in the sciences and engineering?*
24. *Evaluation of Principles: We use several different logical principles to prove mathematical theorems - modus ponens, transitivity, modus tollens, deduction theorem, contraposition, proof by cases, mathematical induction, and direct argument. Evaluate and*

*compare these logical principles as a basis of mathematical proof.*

*Which methods are more useful and which are more rigorous?*

*Why?*

*(Bell, 1978 : 398 – 399)*