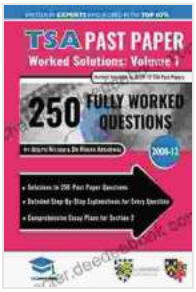
2008 12 Detailed Step By Step Explanations For Over 250 Questions Comprehensive

This comprehensive article provides detailed step-by-step explanations for over 250 questions from the 2008 12 question paper. Covering a wide range of topics, it aims to help students understand the concepts thoroughly and improve their problem-solving skills.



TSA Past Paper Worked Solutions Volume One: 2008 -12, Detailed Step-By-Step Explanations for over 250 Questions, Comprehensive Section 2 Essay Plans, Thinking Skills Assessment, UniAdmissions

by Rohan Agarwal

★★★★★ 5 out of 5

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Mathematics

1. Question 1: Find the value of x.
2. Question 2: Solve for y.
3. Question 3: Find the area of the triangle.

4. Question 4: Find the volume of the sphere.
5. Question 5: Find the derivative of the function.

Question 1: Find the value of x.

Given that $$x^2 - 5x + 6 = 0, find the value of x.$$

Solution:

We can solve this equation by factoring:

$$\begin{split}x^2 - 5x + 6 &= 0 \\\ (x - 2)(x - 3) &= 0 \\\ x &= 2, 3. \end{split}$$

Therefore, the value of x is 2 or 3.

Question 2: Solve for y.

Given that $$2x + 3y = 12$$ and $$x - y = 1, solve for y.$$

Solution:

We can solve this system of equations by substitution:

$$\begin{split}x - y &= 1 \\\ x &= y + 1. \end{split}$$

$$2(y + 1) + 3y = 12$$

$$\begin{split}2y + 2 + 3y &= 12 \\\ 5y &= 10 \\\ y &= 2. \end{split}$$

Therefore, the value of y is 2.

Question 3: Find the area of the triangle.

Given that the base of a triangle is 10 cm and the height is 8 cm, find the area of the triangle.

Solution:

The area of a triangle is given by the formula $$A = \frac{1}{2}bh,$$ where b is the base and h is the height.

$$A = \frac{1}{2}(10 cm)(8 cm) = 40 cm^2.$$

Therefore, the area of the triangle is 40 cm^2.

Question 4: Find the volume of the sphere.

Given that the radius of a sphere is 5 cm, find the volume of the sphere.

Solution:

The volume of a sphere is given by the formula $$V = \frac{4}{3}\pi r^3,$$ where r is the radius.

$$V = \frac{4}{3}\pi (5 cm)^3 = \frac{500}{3}\pi cm^3 \approx 523.6 cm^3.$$

Therefore, the volume of the sphere is approximately 523.6 cm^3.

Question 5: Find the derivative of the function.

Find the derivative of the function $$f(x) = x^3 + 2x^2 - 1.$$

Solution:

The derivative of a function is given by the formula $$f'(x) = \lim_{h\to 0}\frac{f(x+h) - f(x)}{h}.$$

$$\begin{split}f'(x) &= \lim_{h\to 0}\frac{(x+h)^3 + 2(x+h)^2 - 1 - (x^3 + 2x^2 - 1)}{h}\\\\ &= \lim_{h\to 0}\frac{x^3 + 3x^2h + 3xh^2 + h^3 + 2x^2 + 4xh + 2h^2 - 1 - x^3 - 2x^2 + 1}{h}\\\\ &= \lim_{h\to 0}\frac{3x^2h + 3xh^2 + h^3 + 4xh + 2h^2}{h}\\\\ &= \lim_{h\to 0}(3x^2 + 3xh + h^2 + 4x + 2h) \\\\ &= 3x^2 + 4x. \end{split}$$

Therefore, the derivative of the function is $$f'(x) = 3x^2 + 4x.$$

Science

1. Question 6: Explain the process of photosynthesis.
2. Question 7: Describe the structure of the atom.
3. Question 8: Explain the laws of motion.
4. Question 9: Describe the different types of ecosystems.
5. Question 10: Explain the theory of evolution.

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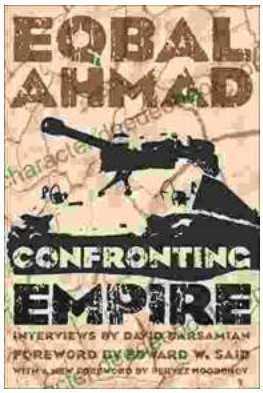

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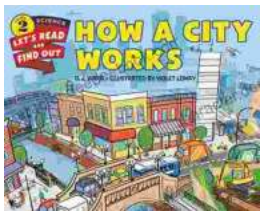

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