



Problem Solving & Reasoning

Name: _____

Grade: 7

Date: _____

Solve multi-step problems, analyze patterns, use logic, estimate, and check for errors. Show your reasoning and strategy.

Part 1 · Multi-Step Word Problems

STEPS

1. A store sold 345 pens, 268 pencils, and 192 markers. Total items = _____

2. A bus travels 180 km in 2 h, then 150 km in 1.5 h. Average speed = _____ km/h

3. A box has 10 packs, each pack 15 cards. 6 boxes total. Cards = _____

4. A recipe needs 3.5 cups flour, 2.75 cups sugar, 1 cup cocoa. Total = _____ cups

5. A tank holds 80 L. Used 28 L, then 17 L. Liters left = _____

6. A runner covers 3.5 km, then 2.75 km, then 1.2 km. Total = _____ km

Part 2 · Patterns & Sequences

PATTERN

7. Sequence: 5, 9, 13, 17, ____ Next = _____ ; rule: add _____

8. Sequence: 2, 8, 32, 128, __ Next = _____ ; rule: $\times$ _____

9. Term n rule: $T(n)=4n+3$. $T(7)=$ _____

10. If $T(n)=3n^2$, $T(4)=$ _____

11. Expression: "6 less than triple x" = _____

12. Evaluate $5(a+4)$ when $a=6$: _____

Part 3 · Logical Reasoning LOGIC

13. Three numbers sum to 70. Two are 28 and 22. Third = _____

14. A number doubled then $+16 = 80$. Original number = _____

15. Product of two equal numbers is 81. Each number = _____

16. The mean of 8, 10, x, 14 is 12. Find x = _____

17. You subtract a number from 600 and get 412. Number subtracted = _____

18. Two consecutive multiples of 8 sum to 120. Larger multiple = _____

Part 4 · Estimation & Reasonableness EST

19. Estimate: $3.5 + 2.75 + 1.2 \approx$ _____

20. Estimate: $345 + 268 + 192 \approx$ _____

21. Is $180 + 150$ closer to 300 or 400? _____

22. Is $10 \times 15 \times 6$ closer to 900 or 1,000? _____

23. $3.5 \times 4.1 \approx$ _____

24. $80 - 28 - 17 \approx$ _____

Part 5 · Error Analysis ERROR

25. Error: $3.5 + 2.75 + 1.2 = 7.45$. Correct & mistake?

26. Error: $345 + 268 + 192 = 895$. Correct & why?

27. Error: $10 \times 15 \times 6 = 150$. Correct & why?

Part 6 · Challenge & Reflection CHALLENGE

28. Sequence start 5 add 4 each time. 9th term = _____

29. Find n: $4n + 16 = 80 \rightarrow n =$ _____

(30. If $T(n)=3n^2$, solve $T(n)=48$. $n =$ _____

(31. Two numbers differ by 22 and sum to 98. Larger = _____

(32. Reflection: Most helpful strategy? _____

Answer Key

1. 805
2. 110
3. 900
4. 7.25
5. 35
6. 7.45
7. 21 ; 4
8. 512 ; 4
9. 31
10. 48
11. $3x-6$
12. 50
13. 20
14. 32
15. 9
16. 14
17. 188
18. 64
19. 7.45
20. 805
21. 900
22. 7.45
23. 35
24. 35
25. 7.45 / added not multiplied
26. 805 / added not multiplied
27. 900 / multiplied not added
28. 37
29. 16
30. 4
31. 60
32. Varies

Accept equivalent forms. Reflection varies.