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25. Find the missing number: $\langle 400 : 20 \rangle$, $\langle 900 : 30 \rangle$, $\langle 225 : ? \rangle$

- A. 12
- B. 15
- C. 25
- D. 35

Answer: B. 15

Step-by-Step Solution: Find the square root of 225. Since $15 \times 15 = 225$, the missing right value is 15.

SAMPLE ANALYSIS F:

3 ---- (12) ---- 4

5 ---- (30) ---- 6

2 ---- (16) ---- 8

Rule: Multiply the two outer numbers to find the middle bracket number (Left $\times$ Right = Middle).

26. Find the missing number:

6 ---- (42) ---- 7

8 ---- (?) ---- 4

9 ---- (45) ---- 5

- A. 28
- B. 32
- C. 36
- D. 40

Step-by-Step Solution: Look at the middle group. The left is 12 and the center is 36. Divide to find the missing right factor: $36 \div 12 = 3$.

29. Find the missing number:

$$11 \text{ ---- } (44) \text{ ---- } 4$$

$$6 \text{ ---- } (60) \text{ ---- } 10$$

$$7 \text{ ---- } (?) \text{ ---- } 7$$

A. 42

B. 49

C. 56

D. 14

Answer: B. 49

Step-by-Step Solution: Multiply the left and right numbers together: $7 \times 7 = 49$.

30. Find the missing number:

$$? \text{ ---- } (100) \text{ ---- } 10$$

$$25 \text{ ---- } (100) \text{ ---- } 4$$

$$5 \text{ ---- } (20) \text{ ---- } 4$$

A. 5

B. 10

C. 20

D. 50

Answer: B. 10

Step-by-Step Solution: Divide the center value by the right value to find the left missing piece: $100 \div 10 = 10$.

SAMPLE ANALYSIS G:

$$[12 \# 3] = 4 , [20 \# 5] = 4 , [18 \# 2] = 9$$

Rule: Divide the first number by the second number to find the answer (First $\div$ Second = Result).

31. Find the missing number: $[30 \# 6] = 5$, $[45 \# 5] = 9$,
 $[50 \# 10] = ?$

- A. 4
- B. 5
- C. 10
- D. 2

Answer: B. 5

Step-by-Step Solution: Follow the division rule: $50 \div 10 = 5$. The answer is 5.

32. Find the missing number: $[24 \# ?] = 6$, $[36 \# 4] = 9$,
 $[40 \# 8] = 5$

- A. 3
- B. 4
- C. 6
- D. 8

Answer: B. 4

Step-by-Step Solution: Look at the first puzzle box. $24 \div \text{something} = 6$. To find the missing number, divide 24 by 6: $24 \div 6 = 4$.

SAMPLE ANALYSIS I:

[$5 * 2 \rightarrow 9$] , [$4 * 3 \rightarrow 11$] , [$6 * 4 \rightarrow 13$]

Rule: Multiply the two inputs, then subtract 1 to get the final output [(First $\times$ Second) - 1 = Output].

41. Find the missing number: [$3 * 5 \rightarrow 14$] , [$2 * 8 \rightarrow 15$] , [$4 * 4 \rightarrow ?$]

A. 14

B. 15

C. 16

D. 17

Answer: B. 15

Step-by-Step Solution: Multiply the inputs, then subtract 1:
 $(4 \times 4) - 1 = 16 - 1 = 15$.

42. Find the missing number: [$6 * 2 \rightarrow 11$] , [$? * 3 \rightarrow 14$] , [$5 * 5 \rightarrow 24$]

A. 4

B. 5

C. 6

D. 7

Answer: B. 5

Step-by-Step Solution: Work backward from the middle expression. Add 1 first: $14 + 1 = 15$. Now divide by the known factor 3: $15 \div 3 = 5$.

80. Find the missing number: $[50 @ ?] = 40$, $[30 @ 10] = 20$, $[15 @ 15] = 15$

- A. 20
- B. 30
- C. 40
- D. 25

Answer: B. 30

Step-by-Step Solution: For the first puzzle group, double the answer: $\$40 \times 2 = \80 . Now subtract 50: $\$80 - 50 = 30\$$.

SAMPLE ANALYSIS Q:

$(12 \% 4) \rightarrow 6$, $(20 \% 5) \rightarrow 10$, $(30 \% 3) \rightarrow 15$

Rule: Divide the first number by the second, then multiply the result by 2 $[(\text{First} \div \text{Second}) \times 2 = \text{Output}]$.

81. Find the missing number: $(24 \% 6) \rightarrow 12$, $(15 \% 5) \rightarrow 6$, $(40 \% 4) \rightarrow ?$

- A. 15
- B. 20
- C. 25
- D. 30

Answer: B. 20

Step-by-Step Solution: Divide the numbers inside the brackets first: $\$40 \div 4 = 10\$$. Now multiply that result by 2: $\$10 \times 2 = 20\$$.

100. Find the missing number: $(50 * 50) \rightarrow 100$, $(75 * ?)$
 $\rightarrow 100$, $(90 * 10) \rightarrow 100$

- A. 20
- B. 25
- C. 30
- D. 15

Answer: B. 25

Step-by-Step Solution: Subtract 75 from 100 to get the missing variable: $100 - 75 = 25$.

SAMPLE ANALYSIS U:

$[10 - 2 \rightarrow 4]$, $[15 - 5 \rightarrow 5]$, $[25 - 5 \rightarrow 10]$

Rule: Subtract the second number from the first, then divide the result by 2 $[(\text{First} - \text{Second}) \div 2 = \text{Output}]$.

101. Find the missing number: $[12 - 4 \rightarrow 4]$, $[18 - 2 \rightarrow 8]$
 , $[30 - 10 \rightarrow ?]$

- A. 8
- B. 10
- C. 12
- D. 6

Answer: B. 10

Step-by-Step Solution: Subtract first: $30 - 10 = 20$. Now divide by 2: $20 \div 2 = 10$.

- A. 16
- B. 18
- C. 20
- D. 14

Answer: B. 18

Step-by-Step Solution: Follow the subtraction rule: $\$30 - 12 = 18\$$.

112. Find the missing number: $[19 \$?] = 10$, $[24 \$ 14] = 10$, $[15 \$ 5] = 10$

- A. 8
- B. 9
- C. 10
- D. 7

Answer: B. 9

Step-by-Step Solution: Look at the first bracket. $\$19 - \text{something} = 10\$$. Subtract 10 from 19 to find the missing part: $\$19 - 10 = 9\$$.

113. Find the missing number: $[? \$ 15] = 25$, $[50 \$ 25] = 25$, $[35 \$ 10] = 25$

- A. 35
- B. 40
- C. 45
- D. 30

Answer: B. 40

Answer: B. 12

Step-by-Step Solution: Add 12 to 132 to get 144. Find the square root of 144, which is 12 ($12 \times 12 = 144$).

SAMPLE ANALYSIS Z:

$/ 15 \rightarrow 5$, $/ 24 \rightarrow 8$, $/ 33 \rightarrow 11$

Rule: Divide the inner number by 3 to get the output.

126. Find the missing number: $/ 18 \rightarrow 6$, $/ 27 \rightarrow 9$, $/ 60 \rightarrow ?$

A. 15

B. 20

C. 30

D. 18

Answer: B. 20

Step-by-Step Solution: Follow the division pattern: $60 \div 3 = 20$.

127. Find the missing number: $/ 9 \rightarrow 3$, $/ ? \rightarrow 10$, $/ 45 \rightarrow 15$

A. 20

B. 30

C. 25

D. 35

Answer: B. 30

172. Find the missing number: $(8 - 3) \rightarrow 10$, $(? - 5) \rightarrow 14$, $(12 - 2) \rightarrow 20$

- A. 10
- B. 12
- C. 14
- D. 11

Answer: B. 12

Step-by-Step Solution: Work backward from the middle expression. The output is 14, so divide by 2 first: $14 \div 2 = 7$. Now add the subtracted 5 back: $7 + 5 = 12$.

173. Find the missing number: $(25 - ?) \rightarrow 30$, $(16 - 6) \rightarrow 20$, $(12 - 2) \rightarrow 20$

- A. 8
- B. 10
- C. 12
- D. 5

Answer: B. 10

Step-by-Step Solution: Divide the output 30 by 2 to get 15. Now find what subtracted from 25 leaves 15: $25 - 15 = 10$.

174. Find the missing number: $(15 - 8) \rightarrow 14$, $(11 - 2) \rightarrow 18$, $(9 - 5) \rightarrow ?$

- A. 6
- B. 8
- C. 10