

Name _____

Date _____

12.2 Sharing in a ratio — worked answers

Divide a quantity into two or more parts in a given ratio, and work backwards from one share to the total. · 49 questions

A · Fluency — Add, divide, multiply.

- 1 Share **20** in the ratio **2 : 3**. What is the **larger** share?

Answer: 12

There are 5 parts, so one part is $20 \div 5 = 4$. The larger share is $3 \times 4 = 12$.

- 2 Share **20** in the ratio **2 : 3**. What is the **smaller** share?

Answer: 8

One part is 4, so the smaller share is $2 \times 4 = 8$.

- 3 Share **40** in the ratio **3 : 5**. What is the **larger** share?

Answer: 25

There are 8 parts, so one part is $40 \div 8 = 5$. The larger share is $5 \times 5 = 25$.

- 4 Share **40** in the ratio **3 : 5**. What is the **smaller** share?

Answer: 15

One part is 5, so the smaller share is $3 \times 5 = 15$.

- 5 Share **36** in the ratio **4 : 5**. What is the **larger** share?

Answer: 20

There are 9 parts, so one part is $36 \div 9 = 4$. The larger share is $5 \times 4 = 20$.

- 6 Share **36** in the ratio **4 : 5**. What is the **smaller** share?

Answer: 16

One part is 4, so the smaller share is $4 \times 4 = 16$.

- 7 Share **60** in the ratio **1 : 5**. What is the **larger** share?

Answer: 50

There are 6 parts, so one part is $60 \div 6 = 10$. The larger share is $5 \times 10 = 50$.

- 8 Share **60** in the ratio **1 : 5**. What is the **smaller** share?

Answer: 10

One part is 10, so the smaller share is $1 \times 10 = 10$.

- 9 Share **48** in the ratio **5 : 7**. What is the **larger** share?

Answer: 28

There are 12 parts, so one part is $48 \div 12 = 4$. The larger share is $7 \times 4 = 28$.

- 10 Share **48** in the ratio **5 : 7**. What is the **smaller** share?

Answer: 20

One part is 4, so the smaller share is $5 \times 4 = 20$.

- 11** Share **30** in the ratio **2 : 3**. What is the **larger** share?

Answer: 18

There are 5 parts, so one part is $30 \div 5 = 6$. The larger share is $3 \times 6 = 18$.

- 12** Share **30** in the ratio **2 : 3**. What is the **smaller** share?

Answer: 12

One part is 6, so the smaller share is $2 \times 6 = 12$.

- 13** Share **56** in the ratio **3 : 4**. What is the **larger** share?

Answer: 32

There are 7 parts, so one part is $56 \div 7 = 8$. The larger share is $4 \times 8 = 32$.

- 14** Share **56** in the ratio **3 : 4**. What is the **smaller** share?

Answer: 24

One part is 8, so the smaller share is $3 \times 8 = 24$.

- 15** Share **45** in the ratio **4 : 5**. What is the **larger** share?

Answer: 25

There are 9 parts, so one part is $45 \div 9 = 5$. The larger share is $5 \times 5 = 25$.

- 16** Share **45** in the ratio **4 : 5**. What is the **smaller** share?

Answer: 20

One part is 5, so the smaller share is $4 \times 5 = 20$.

- 17** Share **24** in the ratio **1 : 2**. What is the **larger** share?

Answer: 16

There are 3 parts, so one part is $24 \div 3 = 8$. The larger share is $2 \times 8 = 16$.

- 18** Share **24** in the ratio **1 : 2**. What is the **smaller** share?

Answer: 8

One part is 8, so the smaller share is $1 \times 8 = 8$.

- 19** Share **72** in the ratio **5 : 7**. What is the **larger** share?

Answer: 42

There are 12 parts, so one part is $72 \div 12 = 6$. The larger share is $7 \times 6 = 42$.

- 20** Share **72** in the ratio **5 : 7**. What is the **smaller** share?

Answer: 30

One part is 6, so the smaller share is $5 \times 6 = 30$.

- 21** Share **35** in the ratio **2 : 5**. What is the **larger** share?

Answer: 25

There are 7 parts, so one part is $35 \div 7 = 5$. The larger share is $5 \times 5 = 25$.

- 22** Share **35** in the ratio **2 : 5**. What is the **smaller** share?

Answer: 10

One part is 5, so the smaller share is $2 \times 5 = 10$.

- 23** Share **63** in the ratio **2 : 7**. What is the **larger** share?

Answer: 49

There are 9 parts, so one part is $63 \div 9 = 7$. The larger share is $7 \times 7 = 49$.

- 24** Share **63** in the ratio **2 : 7**. What is the **smaller** share?

Answer: 14

One part is 7, so the smaller share is $2 \times 7 = 14$.

- 25** Share **60** in the ratio **1 : 2 : 3**. What is the largest share?

Answer: 30

6 parts, so one part is 10. The largest is $3 \times 10 = 30$.

- 26** Share **90** in the ratio **2 : 3 : 4**. What is the largest share?

Answer: 40

9 parts, so one part is 10. The largest is $4 \times 10 = 40$.

- 27** Share **120** in the ratio **1 : 3 : 4**. What is the largest share?

Answer: 60

8 parts, so one part is 15. The largest is $4 \times 15 = 60$.

- 28** Share **100** in the ratio **1 : 4 : 5**. What is the largest share?

Answer: 50

10 parts, so one part is 10. The largest is $5 \times 10 = 50$.

- 29** Share **84** in the ratio **2 : 4 : 6**. What is the largest share?

Answer: 42

12 parts, so one part is 7. The largest is $6 \times 7 = 42$.

B · Reasoning — The method, and how to check it.

- 30** What is the first step when sharing in a ratio?

- ☐ Divide by the first number
- ☐ Add the parts to find how many there are altogether
- ☐ Multiply the parts
- ☐ Subtract the parts

Answer: Add the parts to find how many there are altogether

The total number of parts is what you divide by.

- 31** You share 20 in the ratio 2 : 3. What is one part worth?

- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 10

Answer: 4

There are 5 parts, and $20 \div 5 = 4$.

- 32** How can you check a share is right?

- ☐ You cannot
- ☐ Add the shares and see whether they give the total
- ☐ Divide them
- ☐ Compare with the ratio only

Answer: Add the shares and see whether they give the total

$8 + 12 = 20$ ✓. This check takes seconds and catches almost every slip.

- 33** You share 20 in the ratio 2 : 3 and get 8 and 12. Which share belongs to the 3?

☐ 8
☐ 12
☐ Either
☐ Neither

Answer: 12

The larger part of the ratio takes the larger share.

- 34** Can a total always be shared exactly in any ratio?

☐ Yes
☐ No

Answer: No

Only when the total divides exactly by the number of parts. 10 cannot be shared 2 : 3 : 4 into whole numbers, because 10 is not a multiple of 9.

- 35** Two people share money in the ratio 1 : 1. What does that mean?

☐ One gets it all
☐ They share it equally
☐ One gets twice as much
☐ It cannot be done

Answer: They share it equally

Equal parts, so equal shares.

- 36** Sharing 60 in the ratio 1 : 2 : 3, how many parts are there?

☐ 3
☐ 6
☐ 60
☐ 10

Answer: 6

$1 + 2 + 3 = 6$.

C · Challenge — Working backwards from a share.

- 37** Share \$150 in the ratio 2 : 3 : 5. What is the largest share, in dollars?

Answer: 75

10 parts, so one part is 15. The largest is $5 \times 15 = 75$.

- 38** Two people share money in the ratio 3 : 5. The smaller share is \$27. What is the total, in dollars?

Answer: 72

One part is $27 \div 3 = 9$, and there are 8 parts: $8 \times 9 = 72$.

- 39** Two people share money in the ratio 4 : 7. The larger share is \$91. What is the smaller share, in dollars?

Answer: 52

One part is $91 \div 7 = 13$, so the smaller is $4 \times 13 = 52$.

- 40** Two shares are in the ratio 5 : 3 and differ by 16. What is the larger share?

Answer: 40

The difference is 2 parts, so one part is 8. The larger is $5 \times 8 = 40$.

- 41** A sum is shared 1 : 2 : 4. The smallest share is 12. What is the total?

Answer: 84

One part is 12, and there are 7 parts: $7 \times 12 = 84$.

D · Word problems — Money, mixtures and time.

- 42** Two friends share \$45 in the ratio 4 : 5. How much does the second get, in dollars?

Answer: 25

9 parts, one part is 5, so $5 \times 5 = 25$.

- 43** A 60 cm ribbon is cut in the ratio 1 : 3. How long is the longer piece, in cm?

Answer: 45

4 parts of 15; $3 \times 15 = 45$.

- 44** Concrete mixes cement, sand and gravel 1 : 2 : 3. In 60 kg, how much gravel, in kg?

Answer: 30

6 parts of 10, and gravel is 3 parts: 30 kg.

- 45** A class of 30 has boys and girls in the ratio 2 : 3. How many girls?

Answer: 18

5 parts of 6, and $3 \times 6 = 18$.

- 46** A day's 24 hours is split work : rest in the ratio 1 : 2. How many hours of rest?

Answer: 16

3 parts of 8, and $2 \times 8 = 16$.

- 47** Prize money of \$120 is split 1 : 2 : 3. What does the winner get, in dollars?

Answer: 60

6 parts of 20, and $3 \times 20 = 60$.

- 48** A 90 minute lesson is split reading : writing in the ratio 4 : 5. How many minutes of writing?

Answer: 50

9 parts of 10, and $5 \times 10 = 50$.

- 49** Two shops share 84 boxes in the ratio 3 : 4. How many does the first get?

Answer: 36

7 parts of 12, and $3 \times 12 = 36$.