

GCF and LCM puzzles — Answers to 70

Name: _____

Date: _____

Find the two numbers. Show how you worked them out.

- 1 Two numbers have a greatest common factor of 10 and a least common multiple of 140.

Both numbers are greater than 10. What are the two numbers?

Why

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___ and ___

- 2 Two numbers have a greatest common factor of 9 and a least common multiple of 108.

Both numbers are greater than 10. What are the two numbers?

Why

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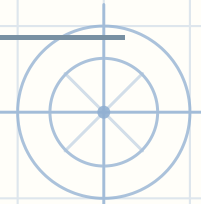
___ and ___



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Find the two numbers. Show how you worked them out.

- 3 Two numbers have a greatest common factor of 1 and a least common multiple of 50.

Both numbers are less than 50. What are the two numbers?

Why

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___ and ___

- 4 Two numbers have a greatest common factor of 6 and a least common multiple of 252.

Both numbers are less than 50. What are the two numbers?

Why

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___ and ___



GCF and LCM puzzles · Answers to 70 — Answer key

If they are stuck

- Their GCF divides both numbers. What does that let you write each of them as?



1. Both numbers are multiples of 10, so they are $10 \times m$ and $10 \times n$. Their LCM is $10 \times m \times n$, so $m \times n = 140 \div 10 = 14$. m and n share no factor, or the GCF would be more than 10. The coprime pairs multiplying to 14 give 10 and 140, 20 and 70. Of those, only 20 and 70 are over 10. More than one way works here: the GCF times the LCM is the two numbers multiplied, $10 \times 140 = 1400$, so the same pairs turn up as the factor pairs of 1400.

3. Both numbers are multiples of 1, so they are $1 \times m$ and $1 \times n$. Their LCM is $1 \times m \times n$, so $m \times n = 50 \div 1 = 50$. m and n share no factor, or the GCF would be more than 1. The coprime pairs multiplying to 50 give 1 and 50, 2 and 25. Of those, only 2 and 25 are under 50. More than one way works here: the GCF times the LCM is the two numbers multiplied, $1 \times 50 = 50$, so the same pairs turn up as the factor pairs of 50.

2. Both numbers are multiples of 9, so they are $9 \times m$ and $9 \times n$. Their LCM is $9 \times m \times n$, so $m \times n = 108 \div 9 = 12$. m and n share no factor, or the GCF would be more than 9. The coprime pairs multiplying to 12 give 9 and 108, 27 and 36. Of those, only 27 and 36 are over 10. More than one way works here: the GCF times the LCM is the two numbers multiplied, $9 \times 108 = 972$, so the same pairs turn up as the factor pairs of 972.

4. Both numbers are multiples of 6, so they are $6 \times m$ and $6 \times n$. Their LCM is $6 \times m \times n$, so $m \times n = 252 \div 6 = 42$. m and n share no factor, or the GCF would be more than 6. The coprime pairs multiplying to 42 give 6 and 252, 12 and 126, 18 and 84, 36 and 42. Of those, only 36 and 42 are under 50. More than one way works here: the GCF times the LCM is the two numbers multiplied, $6 \times 252 = 1512$, so the same pairs turn up as the factor pairs of 1512.