



Year 6 Worksheet 6 - Factoring & Prime Factors

Question 1: Factor the number into its prime factors. Is it prime?

1	Number: $18 = 2 \times 6 = 2 \times 2 \times 3$ Prime Factors: 2, 3, 3 Is it Prime: No
2	Number: 29
3	Number: 56
4	Number: 41
5	Number: 72
6	Number: 23
7	Number: 98



8	Number: 47
9	Number: 120
10	Number: 13

Question 2: Find the Greatest Common Factor (GCF).

1	45 and 75. Factors of 45: 1, 3, 5, 9, 15, 45 Factors of 75: 1, 3, 5, 15, 25, 75 GCF is 15.
2	24 and 36.
3	54 and 72.
4	60 and 90.



5	88 and 99.
6	18, 24, and 36.
7	30, 45, and 75.
8	27, 54, and 81.
9	36, 48, and 60.
10	63, 72, and 81.



Question 3: Find the Least Common Multiples (LCM).

1	12 and 18 Multiple of 12: 12, 24, 36, 48, ... Multiple of 18: 18, 36, 54, 72, ... LCM: 36
2	15 and 25.
3	8 and 10.
4	7 and 14.
5	9 and 27.
6	4, 6, and 8.



7	5, 10, and 15.
8	9, 18, and 27.
9	20, 25, and 50.
10	16, 24, and 32.

Question 4: Answer the following.

1	Factorize 56 into its prime factors.
2	A number has prime factors 3 and 5 only. Find the number.



3	What's the largest number dividing 50 and 75 evenly?
4	Determine the GCF of 36, 54, and 72.
5	Find the smallest multiple of 5, 8, and 12.
6	LCM of 4 and 6 is 12. Find the LCM of 2 and 3.
7	Identify the prime factors common to 24 and 36.
8	The product of two prime factors is 55. What are they?
9	The LCM of 7 and 9, and a common multiple is?
10	The GCF of two numbers is 8. If one is 32, find the other.



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Answer Key

Question 1: Factor the number into its prime factors. Is the number prime?

1	Number: $18 = 2 \times 6 = 2 \times 2 \times 3$ Prime Factors: 2, 3, 3, Is it Prime: No
2	Number: 29 Prime Factors: 29 Is it Prime: Yes
3	Number: 56 Prime Factors: $2 * 2 * 2 * 7$ Is it Prime: No
4	Number: 41 Prime Factors: 41 Is it Prime: Yes
5	Number: 72 Prime Factors: $2 * 2 * 2 * 3 * 3$ Is it Prime: No
6	Number: 23 Prime Factors: 23 Is it Prime: Yes
7	Number: 98 Prime Factors: $2 * 7 * 7$ Is it Prime: No
8	Number: 47 Prime Factors: 47 Is it Prime: Yes
9	Number: 120 Prime Factors: $2 * 2 * 2 * 3 * 5$ Is it Prime: No
10	Number: 13 Prime Factors: 13 Is it Prime: Yes



Question 2: Find the Greatest Common Factor (GCF).

1	45 and 75. Factors of 45: 1, 3, 5, 9, 15, 45 Factors of 75: 1, 3, 5, 15, 25, 75 GCF is 15.
2	24 and 36. Factors of 24: 1, 2, 3, 4, 6, 8, 12, 24 Factors of 36: 1, 2, 3, 4, 6, 9, 12, 18, 36 GCF: The Greatest Common Factor of 24 and 36 is 12.
3	54 and 72. Factors of 54: 1, 2, 3, 6, 9, 18, 27, 54 Factors of 72: 1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 36, 72 GCF: The Greatest Common Factor of 54 and 72 is 18.
4	60 and 90. Factors of 60: 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60 Factors of 90: 1, 2, 3, 5, 6, 9, 10, 15, 18, 30, 45, 90 GCF: The Greatest Common Factor of 60 and 90 is 30.
5	88 and 99. Factors of 88: 1, 2, 4, 8, 11, 22, 44, 88 Factors of 99: 1, 3, 9, 11, 33, 99 GCF: The Greatest Common Factor of 88 and 99 is 11.
6	18, 24, and 36. Factors of 18: 1, 2, 3, 6, 9, 18 Factors of 24: 1, 2, 3, 4, 6, 8, 12, 24 Factors of 36: 1, 2, 3, 4, 6, 9, 12, 18, 36 GCF: The Greatest Common Factor of 18, 24, and 36 is 6.
7	30, 45, and 75. Factors of 30: 1, 2, 3, 5, 6, 10, 15, 30 Factors of 45: 1, 3, 5, 15, 25, 75 Factors of 75: 1, 3, 5, 15, 25, 75 GCF: The Greatest Common Factor of 30, 45, and 75 is 15.
8	27, 54, and 81. Factors of 27: 1, 3, 9, 27 Factors of 54: 1, 2, 3, 6, 9, 18, 27, 54



	Factors of 81: 1, 3, 9, 27, 81 GCF: The Greatest Common Factor of 27, 54, and 81 is 27.
9	36, 48, and 60. Factors of 36: 1, 2, 3, 4, 6, 9, 12, 18, 36 Factors of 48: 1, 2, 3, 4, 6, 8, 12, 16, 24, 48 Factors of 60: 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60 GCF: The Greatest Common Factor of 36, 48, and 60 is 12.
10	63, 72, and 81. Factors of 63: 1, 3, 7, 9, 21, 63 Factors of 72: 1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 36, 72 Factors of 81: 1, 3, 9, 27, 81 GCF: The Greatest Common Factor of 63, 72, and 81 is 9.

Question 3: Find the Least Common Multiples (LCM).

1	12 and 18 Multiple of 12: 12, 24, 36, 48, ... Multiple of 18: 18, 36, 54, 72, ... LCM: 36
2	15 and 25. Multiple of 15: 15, 30, 45, 60, ... Multiple of 25: 25, 50, 75, 100, ... LCM: 75
3	8 and 10. Multiple of 8: 8, 16, 24, 32, ... Multiple of 10: 10, 20, 30, 40, ... LCM: 40
4	7 and 14. Multiple of 7: 7, 14, 21, 28, ... Multiple of 14: 14, 28, 42, 56, ... LCM: 14
5	9 and 27? Multiple of 9: 9, 18, 27, 36, ... Multiple of 27: 27, 54, 81, 108, ... LCM: 27



6	4, 6, and 8. Multiple of 4: 4, 8, 12, 16, ... Multiple of 6: 6, 12, 18, 24, ... Multiple of 8: 8, 16, 24, 32, ... LCM: 24
7	5, 10, and 15. Multiple of 5: 5, 10, 15, 20, ... Multiple of 10: 10, 20, 30, 40, ... Multiple of 15: 15, 30, 45, 60, ... LCM: 30
8	9, 18, and 27? Multiple of 9: 9, 18, 27, 36, ... Multiple of 18: 18, 36, 54, 72, ... Multiple of 27: 27, 54, 81, 108, ... LCM: 54
9	20, 25, and 50. Multiple of 20: 20, 40, 60, 80, ... Multiple of 25: 25, 50, 75, 100, ... Multiple of 50: 50, 100, 150, 200, ... LCM: 100
10	Calculate the LCM of 16, 24, and 32. Multiple of 16: 16, 32, 48, 64, ... Multiple of 24: 24, 48, 72, 96, ... Multiple of 32: 32, 64, 96, 128, ... LCM: 96

Question 4: Answer the following.

1	Factorize 56 into its prime factors. Answer: Prime factors: $2 \times 2 \times 2 \times 7$
2	A number has prime factors 3 and 5 only. Find the number. Answer: The number is 15.
3	What's the largest number dividing 50 and 75 evenly? Answer: GCF: 25



4	Determine the GCF of 36, 54, and 72. Answer: GCF: 18
5	Find the smallest multiple of 5, 8, and 12. Answer: LCM: 120
6	LCM of 4 and 6 is 12. Find the LCM of 2 and 3. Answer: LCM of 2 and 3: 6
7	Identify the prime factors common to 24 and 36. Answer: Common prime factors: $2 \times 2 \times 3 = 12$
8	The product of two prime factors is 55. What are they? Answer: The prime factors are 5 and 11.
9	The LCM of 7 and 9, and a common multiple is? Answer: LCM of 7 and 9: 63; Common multiple: 126
10	The GCF of two numbers is 8. If one is 32, find the other. Answer: The other number is 40.