

Facts to Know

Common Factors

- A *factor* is a number which divides evenly into another number. The number 6 divides evenly into 12. It is a factor of 12.
- When two numbers are multiplied, they are factors of the answer.
In the equation $2 \times 6 = 12$, the numbers 2 and 6 are factors of 12.
The number 1 is always a factor of every number.
- A *common factor* is a number which is a factor of two different products.
Since the number 6 is a factor of 12 and a factor of 18, it is a common factor of both numbers.

Sample A

The factors of 12 are 1, 2, 3, 4, 6, and 12.

The factors of 18 are 1, 2, 3, 6, 9, and 18.

The common factors are 1, 2, 3, and 6.

Common Multiples

- A *multiple* is the number made when any two factors are multiplied together. It is the product of two factors.
In the equation $2 \times 6 = 12$, the number 12 is a multiple of 2 and 6.
- A *common multiple* is a number that is a product of the same factor as another number.
The number 12 is a common multiple of both 2 and 3.
The number 6 is a common multiple of both 2 and 3.
The number 18 is a common multiple of both 2 and 3.
- Some common multiples of 2 and 3 are 6, 12, and 18.

Sample B

The multiples of 2 are 2, 4, 6, 8, 10, 12, 14, 16, 18, and 20.

The multiples of 3 are 3, 6, 9, 12, 15, and 18.

Simple Exponents

- When a number is to be multiplied by itself, it can be written as an exponent.
- An *exponent* tells how many times to multiply the base number by itself.
The number 4 written as an exponent of the base number 3 (3^4) means multiply 3 four times or $3 \times 3 \times 3 \times 3$ (81).

Sample C

$$3^4 = 3 \times 3 \times 3 \times 3 = 81$$

Common factors are numbers that are factors of two different products. The factors 1,2,3, and 6 are common to 12 and 18.

(①, 12, ②, ⑥, ③, 4)

Factors of 12

(①, 18, ②, 9, ③, ⑥)

Factors of 18

Directions: Circle the common factors for each pair of numbers.

1. 8 (1, 2, 4, 8)

12 (1, 2, 3, 4, 6, 12)

5. 10 (1, 2, 5, 10)

20 (1, 2, 4, 5, 10, 20)

2. 6 (1, 2, 3, 6)

8 (1, 2, 4, 8)

6. 12 (1, 2, 3, 4, 6, 12)

24 (1, 2, 3, 4, 6, 8, 12, 24)

3. 10 (1, 2, 5, 10)

15 (1, 3, 5, 15)

7. 8 (1, 2, 4, 8)

10 (1, 2, 5, 10)

4. 16 (1, 2, 4, 8, 16)

24 (1, 2, 3, 4, 6, 8, 12, 24)

8. 24 (1, 2, 3, 4, 6, 8, 12, 24)

28 (1, 2, 4, 7, 14, 28)

Directions: List the factors for each number in the problems below. Circle the common factors.

9. 6 (1, 2, 3, 6)

10 (____, ____, ____, ____)

14. 24

30

10. 9 (____, ____, ____)

18 (____, ____, ____, ____, ____, ____)

15. 32

16

11. 12

16

16. 48

36

12. 7

14

17. 36

18

13. 10

30

18. 18

12

Directions: List the factors for each number. Circle the common factors for each set of three numbers.

19. 6 (1, 2, 3, 6)

12 (____, ____, ____, ____, ____, ____)

18 (____, ____, ____, ____, ____, ____)

21. 10

15

25

20. 9

12

24

22. 16

24

36

A *multiple* is the product of two factors.

A *common multiple* is a number that is a product of the same factor as another number.

To find the multiples of a number, multiply that number by 1, then 2, then 3, etc.

Here are the first six multiples of 4 and 6.

4 (4, 8, 12, 16, 20, 24)

6 (6, 12, 18, 24, 30, 36)

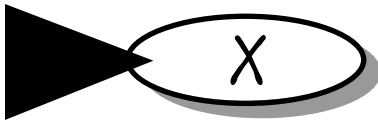
The numbers 12 and 24 are common multiples of both 4 and 6.

Directions: Find and circle the common multiples of the pairs of factors named below.

- | | |
|--|-----------------------|
| 1. 3 (3, 6, 9, 12, 15, 18) | 4. 6 (6, 12, 18, 24) |
| 2 (2, 4, 6, 8, 10, 12, 14, 16, 18) | 8 (8, 16, 24) |
| 2. 4 (4, 8, 12, 16, 20, 24) | 5. 9 (9, 18, 27, 36) |
| 2 (2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24) | 6 (6, 12, 18, 24, 36) |
| 3. 9 (9, 18, 27, 36) | 6. 12 (12, 24, 36) |
| 4 (4, 8, 12, 16, 20, 24, 28, 32, 36) | 9 (9, 18, 27, 36) |

Directions: List the first six multiples for each of the sets of numbers named below. Circle the common multiples.

- | | |
|---|---|
| 7. 9 (9, 18, 27, 36, 45, 54) | 9. 10 (_____ , _____ , _____ , _____ , _____ , _____) |
| 3 (_____ , _____ , _____ , _____ , _____ , _____) | 5 (_____ , _____ , _____ , _____ , _____ , _____) |
| 8. 12 (_____ , _____ , _____ , _____ , _____ , _____) | 10. 3 (_____ , _____ , _____ , _____ , _____ , _____) |
| 10 (_____ , _____ , _____ , _____ , _____ , _____) | 12 (_____ , _____ , _____ , _____ , _____ , _____) |



Answer Key (cont.)

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- 735
- 903
- 943
- 1,428
- 1,188
- 2,739
- 1,395
- 3,417
- 3,869
- 3,977
- 4,615
- 5,828
- 1,219
- 3,567
- 1,008
- 4,316
- 3,608
- 7,708
- 1,476
- 4,819

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- 1,600
- 2,142
- 3,116
- 3,115
- 2,432
- 1,634
- 5,980
- 864
- 1,560
- 2,115
- 2,376
- 4,482
- 3,942
- 2,478
- 2,214
- 990
- 2,275
- 3,267
- 2,001
- 3,354

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- 5,850
- 6,762
- 3,956
- 7,722
- 4,355
- 3,422
- 3,724
- 8,514
- 4,950
- 6,776
- 4,235
- 7,623

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- 40
- 40
- 54
- 54
- 56
- 56

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- 120
- 120
- 504
- 504
- 48
- 48
- 252
- 252
- 135
- 135
- 24,000
- 24,000

Page 34

- 7,744
- 9,801
- 4,356
- 5,929
- 4,761
- 3,481
- 6,241
- 7,921
- 6,084
- 7,569
- 2,401
- 4,489

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- 13,860
- 67,355
- 32,384
- 3,161
- 47,235
- 28,504
- 33,633
- 22,568
- 61,028
- 44,394
- 35,992
- 31,473
- 3,663
- 2,442
- 12,210
- 14,652

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Actual Products

- 2,511
- 1,479
- 1,800
- 1,056
- 4,346
- 142,175
- 299,530
- 504,432

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- 1, 2, 4
- 1, 2
- 1, 5
- 1, 2, 4, 8
- 1, 2, 5, 10
- 1, 2, 3, 4, 6, 12
- 1, 2
- 1, 2, 4
- 6: 1, 2, 3, 6 10: 1, 2, 5, 10
CF: 1, 2
- 9: 1, 3, 9 18: 1, 2, 3, 6, 9, 18
CF: 1, 3, 9
- 12: 1, 2, 3, 4, 6, 12 16: 1, 2, 4, 8, 16 CF: 1, 2, 4
- 7: 1, 7 14: 1, 2, 7, 14 CF: 1, 7
- 10: 1, 2, 5, 10 30: 1, 2, 3, 5, 6, 15, 30 CF: 1, 2, 5
- 24: 1, 2, 3, 4, 6, 12, 24 30: 1, 2, 3, 5, 6, 15, 30 CF: 1, 2, 3, 6
- 32: 1, 2, 4, 8, 16, 32 16: 1, 2, 4, 8, 16 CF: 1, 2, 4, 8, 16
- 48: 1, 2, 3, 4, 6, 8, 12, 18, 24, 48 36: 1, 2, 3, 4, 6, 9, 12, 18, 36 CF: 1, 2, 3, 4, 6, 12, 18
- 36: 1, 2, 3, 4, 6, 9, 12, 18, 36 18: 1, 2, 3, 6, 9, 18 CF: 1, 2, 3, 6, 9, 18
- 18: 1, 2, 3, 6, 9, 18 12: 1, 2, 3, 4, 6, 12, 18 CF: 1, 2, 3, 6
- 6: 1, 2, 3, 6 12: 1, 2, 3, 4, 6, 12 18: 1, 2, 3, 6, 9, 18 C.F. 1, 2, 3, 6
- 9: 1, 3, 9 12: 1, 2, 3, 4, 6, 12 24: 1, 2, 3, 4, 6, 8, 12, 24 1, 3
- 10: 1, 2, 5, 10 15: 1, 3, 5, 15 25: 1, 5, 25 C.F. 1, 5
- 16: 1, 2, 4, 8, 16 24: 1, 2, 3, 4, 6, 8, 12, 24 36: 1, 2, 3, 4, 6, 9, 12, 18, 36 C.F. 1, 2, 4

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- 3: 3, 6, 9, 12, 15, 18/2: 2, 34, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24 CM: 6, 12, 18
- 4: 4, 8, 12, 16, 20, 24/2: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24 CM: 4, 8, 12, 16, 20, 24
- 6: 6, 12, 18, 24/8: 8, 16, 24 CM: 24
- 9: 9, 18, 27, 36 6: 6, 12, 18, 24, 36 CM: 18, 36
- 9: 9, 18, 27, 36/4: 4, 8, 12, 16, 20, 24 CM: 36
- 12: 12, 24, 36/9: 9, 18, 27, 36 CM: 36
- 9: 9, 18, 27, 36, 45, 54 3: 3, 6, 9, 12, 15, 18 CM: 9
- 12: 12, 24, 36, 48, 60, 72 10: 10, 20, 30, 40, 50, 60 CM: 60
- 10: 10, 20, 30, 40, 50, 60 5: 5, 10, 15, 20, 25, 30 CM: 30
- 3: 3, 6, 9, 12, 15, 18/12: 12, 24, 36, 48, 60, 72 CM: 12

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- 16
- 25
- 2, 2, 4
- 3, 3, 9
- 6, 6, 36
- 8, 8, 64
- 10, 10, 100
- 9, 9, 81
- 7, 7, 49
- 12, 12, 144
- 4, 8, 8
- 9, 27, 27
- 4, 4, 16/16, 4, 64/64
- 6, 6, 36 36, 6, 216/216
- 7, 7, 49/49, 7, 343/343
- 9, 9, 81/81, 9, 729/729
- 5, 5, 25/25, 5, 125/125
- 8, 8, 64/64, 8, 512/512
- 10, 10, 100/100, 10, 1,000/1,000
- 12, 12, 144/144, 12, 1,728/1,728

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Lizard Lore

- 32 inches
- 63 inches
- 72 eggs
- 54 eggs
- 200 inches
- 135 eggs
- 115 cm
- 104 cm
- 200 cm
- 108 eggs

Tree Tales

- 200 feet
- 1,500 cm
- 12,000 mm
- 2,000 cm
- 600 cm
- 900 cm
- 1,200 cm
- 20 cm
- 900 cm
- 2,300 cm

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Buggy Facts

- 1,500 eggs
- 18,000 times
- 475 cm
- 7,300 species
- 750 mm
- 21,000 eggs
- 1,840 miles
- 12,500 eggs
- 5,250 aphids
- 416 spots

Body Stuff

- 5,400 times / 129,600 times
- 5,760 quarts / 87,600 quarts
- 17,520 ounces / 1,226,400 ounces
- 3,500,000 hairs / 50,000,000 hairs
- 5,150 bones
- 4,320 ounces

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- 15 gallons / 5,475 gallons
- 10,950 gallons / 219,000 gallons
- 1,825 gallons / 36,500 gallons
- 520 gallons / 7,800 gallons
- 7,300 gallons / 365 gallons

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- 12,775 gallons / 210 gallons / 76,650 gallons
- 5,475 gallons / 90 gallons / 32,850 gallons
- 24 gallons / 168 gallons / 8,760 gallons
- 840 gallons / 43,800 gallons