

FACTORING.

ARTICLE 87.

Find the Prime Factors

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|------------|--------------|--------------|
| 1. Of 56. | 8. Of 546. | 15. Of 1955. |
| 2. Of 64. | 9. Of 570. | 16. Of 2387. |
| 3. Of 84. | 10. Of 770. | 17. Of 2431. |
| 4. Of 100. | 11. Of 864. | 18. Of 3059. |
| 5. Of 144. | 12. Of 1001. | 19. Of 3306. |
| 6. Of 225. | 13. Of 1309. | 20. Of 3570. |
| 7. Of 420. | 14. Of 1729. | 21. Of 4017. |

ANSWERS.

ARTICLE 87.

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|----------------------|-----------------------------|---------------------|
| 1. 2, 2, 2, 7. | 8. 2, 3, 7, 13. | 15. 5, 17, 23. |
| 2. 2, 2, 2, 2, 2, 2. | 9. 2, 3, 5, 19. | 16. 7, 11, 31. |
| 3. 2, 2, 3, 7. | 10. 2, 5, 7, 11. | 17. 11, 13, 17. |
| 4. 2, 2, 5, 5. | 11. 2, 2, 2, 2, 2, 3, 3, 3. | 18. 7, 19, 23. |
| 5. 2, 2, 2, 2, 3, 3. | 12. 7, 11, 13. | 19. 2, 3, 19, 29. |
| 6. 3, 3, 5, 5. | 13. 7, 11, 17. | 20. 2, 3, 5, 7, 17. |
| 7. 2, 2, 3, 5, 7. | 14. 7, 13, 19. | 21. 3, 13, 103. |

ARTICLE 88.

What Prime Factors are Common to

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|-------------------|-------------------------------|
| 1. 75 and 105? | 12. 54, 72, and 90? |
| 2. 96 and 120? | 13. 84, 126, and 210? |
| 3. 126 and 168? | 14. 112, 140, and 196? |
| 4. 216 and 297? | 15. 132, 176, and 198? |
| 5. 315 and 525? | 16. 140, 350, and 490? |
| 6. 308 and 462? | 17. 132, 330, 462, and 594? |
| 7. 345 and 483? | 18. 273, 351, 429, and 507? |
| 8. 399 and 532? | 19. 322, 483, 805, and 1127? |
| 9. 468 and 585? | 20. 204, 340, 476, and 612? |
| 10. 495 and 825? | 21. 342, 570, 798, and 1026? |
| 11. 819 and 1365? | 22. 546, 819, 1365, and 1911? |

ANSWERS.

ARTICLE 88.

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| 1. 3, 5. | 9. 3, 3, 13. | 16. 2, 5, 7. |
| 2. 2, 2, 2, 3. | 10. 3, 5, 11. | 17. 2, 3, 11. |
| 3. 2, 3, 7. | 11. 3, 7, 13. | 18. 3, 13. |
| 4. 3, 3, 3. | 12. 2, 3, 3. | 19. 7, 23. |
| 5. 3, 5, 7. | 13. 2, 3, 7. | 20. 2, 2, 17. |
| 6. 2, 7, 11. | 14. 2, 2, 7. | 21. 2, 3, 19. |
| 7. 3, 23. | 15. 2, 11. | 22. 3, 7, 13. |
| 8. 7, 19. | | |

ARTICLE 89.

Greatest Common Divisor.

Find the Greatest Common Divisor

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|-----------------------|-------------------------------------|
| 1. Of 76 and 133. | 16. Of 6783 and 11172. |
| 2. Of 120 and 216. | 17. Of 6409 and 14121. |
| 3. Of 248 and 465. | 18. Of 7344 and 11664. |
| 4. Of 351 and 567. | 19. Of 11583 and 17017. |
| 5. Of 551 and 1073. | 20. Of 6660 and 10545. |
| 6. Of 612 and 900. | 21. Of 57, 95, and 133. |
| 7. Of 702 and 1209. | 22. Of 96, 144, and 216. |
| 8. Of 1075 and 1591. | 23. Of 111, 296, and 407. |
| 9. Of 1431 and 2809. | 24. Of 224, 392, and 504. |
| 10. Of 1472 and 1792. | 25. Of 459, 765, and 1173. |
| 11. Of 1848 and 2926. | 26. Of 924, 1210, and 1683. |
| 12. Of 1892 and 3096. | 27. Of 1365, 2340, and 3549. |
| 13. Of 2405 and 3330. | 28. Of 1287, 2079, 4488, and 6384. |
| 14. Of 2211 and 3417. | 29. Of 2898, 3588, 3795, and 3910. |
| 15. Of 5994 and 9657. | 30. Of 7020, 8316, 9126, and 10773. |

31. What is the capacity of the largest vessel that will exactly measure 2232, 2604, or 2945 gal. of petroleum?

32. A railroad company built three side tracks, 6699, 8671, and 9367 ft. in length. What is the greatest length of rail that could be used in their construction?

33. A grain-dealer wishes to construct a number of bins of equal capacity, which will exactly contain 2079 bu. of wheat, 2673 bu. of oats, and 3465 bu. of barley. How many bins must he have, and how many bushels will each hold?

34. A has 648 eggs, B 864, C 1008. If the largest boxes possible are made in which each can exactly pack his eggs, how many dozen will each box contain?

35. A company of speculators bought three tracts of land containing respectively 1029, 1176, and 1372 acres; which they divided into farms of the largest possible size to contain an equal number of acres. If the farms were sold at \$1000 each, how much was realized?

ANSWERS.

ARTICLE 89.

1.	19.	13.	185.	25.	51.
2.	24.	14.	201.	26.	11.
3.	31.	15.	333.	27.	39.
4.	27.	16.	399.	28.	11.
5.	29.	17.	1.	29.	23.
6.	36.	18.	432.	30.	27.
7.	39.	19.	143.	31.	31 gal.
8.	43.	20.	555.	32.	29 ft.
9.	53.	21.	19.	33.	83 bins, 99 bu.
10.	64.	22.	24.	34.	6 doz.
11.	154.	23.	37.	35.	\$73000.
12.	172.	24.	56.		

ARTICLE 90.

Least Common Multiple.

Find the Least Common Multiple

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|----------------------------|------------------------------|
| 1. Of 12, 28, 42. | 17. Of 20, 28, 30, 35, 42. |
| 2. Of 18, 30, 45. | 18. Of 20, 27, 30, 36, 45. |
| 3. Of 24, 30, 40. | 19. Of 14, 21, 26, 39, 91. |
| 4. Of 14, 18, 21. | 20. Of 20, 30, 33, 44, 55. |
| 5. Of 20, 22, 55. | 21. Of 40, 45, 48, 60, 72. |
| 6. Of 10, 45, 54. | 22. Of 14, 34, 35, 85, 119. |
| 7. Of 24, 39, 104. | 23. Of 38, 70, 95, 133. |
| 8. Of 96, 120, 160. | 24. Of 10, 35, 46, 115. |
| 9. Of 6, 10, 15, 25. | 25. Of 21, 35, 51, 85, 119. |
| 10. Of 30, 42, 70, 105. | 26. Of 33, 39, 77, 91, 143. |
| 11. Of 18, 50, 75, 90. | 27. Of 34, 38, 85, 95, 323. |
| 12. Of 30, 34, 51, 85. | 28. Of 51, 69, 85, 115, 391. |
| 13. Of 15, 20, 24, 25. | 29. Of 87, 203, 231, 319. |
| 14. Of 12, 15, 18, 20. | 30. Of 715 and 1001. |
| 15. Of 21, 28, 35, 60. | 31. Of 889 and 1651. |
| 16. Of 24, 30, 36, 40, 45. | 32. Of 291, 485, and 679. |

33. The driving wheels of three locomotives are respectively 14, 15, and 18 ft. in circumference. What is the shortest distance in which all of the wheels will make an exact number of revolutions?

34. What is the least quantity of starch that can be packed in 150-pound barrels, 40-pound boxes, or 24-pound packages?

35. A trader has exactly enough money to buy horses at \$75, mules at \$50, cows at \$30, or Suffolk hogs at \$12 each. How much money has he?

36. A can walk around a race-track in 12 min., B in 15, C in 18, and D in 20 min. If they start from the same place at the same time, and walk in the same direction, in what time will all first arrive at the starting place?

37. A coal-dealer has five bins whose capacities are respectively 102, 114, 255, 285, and 323 bu. What is the smallest number of bushels that could be measured exactly in each?

ANSWERS.

ARTICLE 90.

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| 1. 84. | 13. 600. | 25. 1785. |
| 2. 90. | 14. 180. | 26. 3003. |
| 3. 120. | 15. 420. | 27. 3230. |
| 4. 126 | 16. 360. | 28. 5865. |
| 5. 220. | 17. 420. | 29. 6699. |
| 6. 270. | 18. 540. | 30. 5005. |
| 7. 312. | 19. 546. | 31. 11557. |
| 8. 480. | 20. 660. | 32. 10185. |
| 9. 150. | 21. 720. | 33. 630 ft. |
| 10. 210. | 22. 1190. | 34. 600 lb. |
| 11. 450. | 23. 1330. | 35. \$300. |
| 12. 510. | 24. 1610. | 36. 3 hrs. |
| | | 37. 9690 bu. |

ARTICLE 91.

Cancellation.

1. Multiply 28 by 33, and divide the product by 7 times 11.

2. Divide 32 times 51 times 63 by 9 times 16 times 17.

3. How often is $19 \times 18 \times 15$ contained in $81 \times 95 \times 44$?

4. $27 \times 35 \times 48 \times 58$ is how many times $29 \times 56 \times 18 \times 30$?

5. Divide the product of $24 \times 36 \times 69 \times 75$ by the product of $23 \times 50 \times 72 \times 54$.

6. A grocer exchanged 20 doz. jars at 10 cts. apiece for berries at five cents a quart. How many bushels did he receive?

7. A trader exchanged 120 hhds. of tobacco, each weighing 174 lb., at 24 cts. a pound, for 116 bales of cotton, of 160 lb. each. What was the cotton worth per pound?

8. 96 carloads of anthracite coal, of 210 bu. each, worth 18 cts. a bushel, were given in exchange for 168 bls. of sugar, at nine cents a pound. What did the sugar weigh per barrel?

9. How many sods 20 in. long and 16 in. wide can be cut from a lawn 75 ft. long and 64 ft. wide?

10. A pile of wood is 112 ft. long, 12 ft. wide, and 10 ft. high. Find its value, at \$4.50 a cord.

11. What would be the cost of carpeting a parlor 24 ft. long and 15 ft. wide, with ingrain carpet, at 65 cts. a square yard?

12. Ten sheets of cardboard, each 3 ft. wide and 4 ft. long, were cut into tickets 2 in. wide and 3 in. long, which were sold at 50 cts. per gross. How much was paid for them?

13. Find the cost of excavating a cellar 25 ft. long, 18 ft. wide, and 6 ft. deep, at 22 cts. 5 mills a cubic yard.

14. If 15 men can do a certain work in 32 days by working 9 hrs. a day, how many men could do the same work in 12 days by working 10 hrs. a day?

15. If 84 men can earn a certain sum of money in 18 weeks, working five days to the week, and 10 hrs. a day, how many hours a day should 105 men work for 15 weeks of six days each to earn the same sum?

16. How many days of nine hours each must 28 men work to earn \$1209.60, at 20 cts. apiece per hour?

17. 450 bls. of flour of 196 lb. each, at 3 cts. a lb., were given in exchange for 147 bls. of pork, each weighing 200 lb. What was the value of the pork per pound?

18. A log 2 ft. square at the ends, and 18 ft. long was sawed into palings 36 in. long, 3 in. wide, and 1 in. thick. What was their value, at \$1.75 per hundred?

19. How many thousand bricks 8 in. long, 4 in. wide, and 2 in. thick, would be required for a wall 400 ft. long, 5 ft. high, and 1 ft. thick, no allowance being made for mortar?

20. If it require 3072 tiles, each nine inches square, to pave a certain area, how many tiles 16 in. long by 12 in. wide would be required to pave an area twice as large?

21. 40 reams of paper, of 480 sheets to the ream, each sheet 3 ft. long and 2 ft. wide, was made into books of 320 pages, each page being 8 in. long and 6 in. wide. How many dozen books were there in the entire edition?

ANSWERS.

ARTICLE 91.

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|----|---------|-----|------------|-----|--------------|
| 1. | 12. | 8. | 240 lb. | 15. | 8 hrs. |
| 2. | 42. | 9. | 2160 sods. | 16. | 24 days. |
| 3. | 66. | 10. | \$472.50. | 17. | 9 cts. |
| 4. | 3. | 11. | \$26. | 18. | \$20.16. |
| 5. | 1. | 12. | \$10. | 19. | 54 thousand. |
| 6. | 15 bu. | 13. | \$22.50. | 20. | 2592 tiles. |
| 7. | 27 cts. | 14. | 36 men. | 21. | 180 doz. |