

Video On GCF & LCM

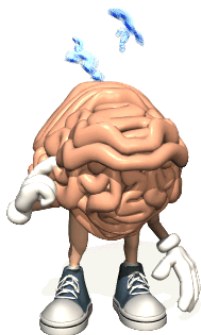
 <https://www.youtube.com/watch?v=NFHEH2rzSJo>

| | | |
|---|----|----|
| 2 | 18 | 24 |
| 3 | 9 | 12 |
| | 3 | 4 |

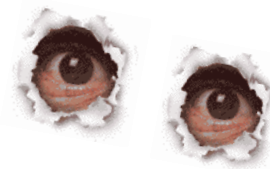
Prime
2, 3, 5, 7, 11, 13
⋮

$$\begin{array}{l} \downarrow \\ \text{GCF}(18, 24) = 2 \times 3 \\ = 6 \end{array}$$

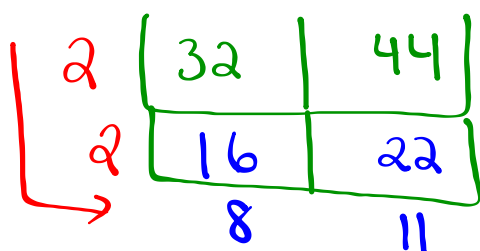
$$\begin{array}{l} \text{LCM}(18, 24) = 2 \times 3 \times 3 \times 4 \\ \downarrow \rightarrow \quad = 72 \end{array}$$



Warm Up



What is the least common multiple of 32 and 44 ?



Use Ladder Method

$$GCF(32, 44) = 2 \times 2 = 4$$

$$LCM(32, 44) = 2 \times 2 \times 8 \times 11 = 352$$

| | | | | | | | | | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 2 | 3 | 5 | 7 | 11 | 13 | 17 | 19 | 23 | 29 | 31 | 37 | 41 | 43 | 47 | 53 | 59 | 61 | 67 | 71 |
| 73 | 79 | 83 | 89 | 97 | 101 | 103 | 107 | 109 | 113 | 127 | 131 | 137 | 139 | 149 | 151 | 157 | 163 | 167 | 173 |
| 179 | 181 | 191 | 193 | 197 | 199 | 211 | 223 | 227 | 229 | 233 | 239 | 241 | 251 | 257 | 263 | 269 | 271 | 277 | 281 |
| 283 | 293 | 307 | 311 | 313 | 317 | 331 | 337 | 347 | 349 | 353 | 359 | 367 | 373 | 379 | 383 | 389 | 397 | 401 | 409 |
| 419 | 421 | 431 | 433 | 439 | 443 | 449 | 457 | 461 | 463 | 467 | 479 | 487 | 491 | 499 | 503 | 509 | 521 | 523 | 541 |
| 547 | 557 | 563 | 569 | 571 | 577 | 587 | 593 | 599 | 601 | 607 | 613 | 617 | 619 | 631 | 641 | 643 | 647 | 653 | 659 |
| 661 | 673 | 677 | 683 | 691 | 701 | 709 | 719 | 727 | 733 | 739 | 743 | 751 | 757 | 761 | 769 | 773 | 787 | 797 | 809 |
| 811 | 821 | 823 | 827 | 829 | 839 | 853 | 857 | 859 | 863 | 877 | 881 | 883 | 887 | 907 | 911 | 919 | 929 | 937 | 941 |
| 947 | 953 | 967 | 971 | 977 | 983 | 991 | 997 | 1009 | 1013 | 1019 | 1021 | 1031 | 1033 | 1039 | 1049 | 1051 | 1061 | 1063 | 1069 |
| 1087 | 1091 | 1093 | 1097 | 1103 | 1109 | 1117 | 1123 | 1129 | 1151 | 1153 | 1163 | 1171 | 1181 | 1187 | 1193 | 1201 | 1213 | 1217 | 1223 |
| 1229 | 1231 | 1237 | 1249 | 1259 | 1277 | 1279 | 1283 | 1289 | 1291 | 1297 | 1301 | 1303 | 1307 | 1319 | 1321 | 1327 | 1361 | 1367 | 1373 |
| 1381 | 1399 | 1409 | 1423 | 1427 | 1429 | 1433 | 1439 | 1447 | 1451 | 1453 | 1459 | 1471 | 1481 | 1483 | 1487 | 1489 | 1493 | 1499 | 1511 |
| 1523 | 1531 | 1543 | 1549 | 1553 | 1559 | 1567 | 1571 | 1579 | 1583 | 1597 | 1601 | 1607 | 1609 | 1613 | 1619 | 1621 | 1627 | 1637 | 1657 |
| 1663 | 1667 | 1669 | 1693 | 1697 | 1699 | 1709 | 1721 | 1723 | 1733 | 1741 | 1747 | 1753 | 1759 | 1777 | 1783 | 1787 | 1789 | 1801 | 1811 |
| 1823 | 1831 | 1847 | 1861 | 1867 | 1871 | 1873 | 1877 | 1879 | 1889 | 1901 | 1907 | 1913 | 1931 | 1933 | 1949 | 1951 | 1973 | 1979 | 1987 |
| 1993 | 1997 | 1999 | 2003 | 2011 | 2017 | 2027 | 2029 | 2039 | 2053 | 2063 | 2069 | 2081 | 2083 | 2087 | 2089 | 2099 | 2111 | 2113 | 2129 |

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Homework Solutions

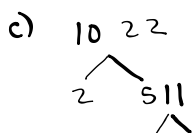
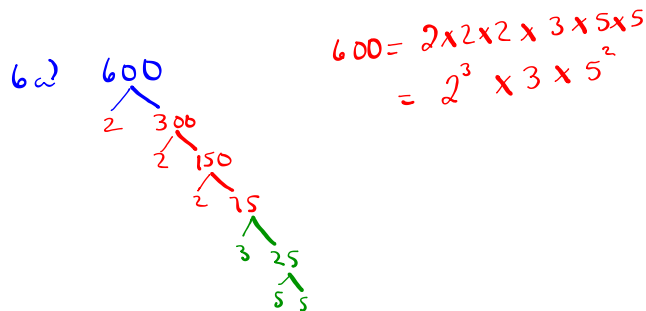
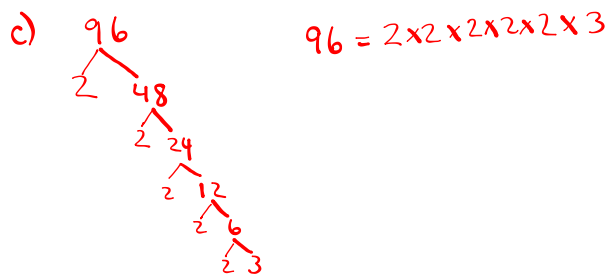
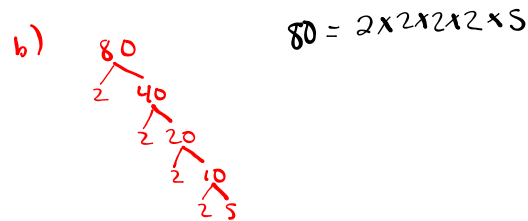
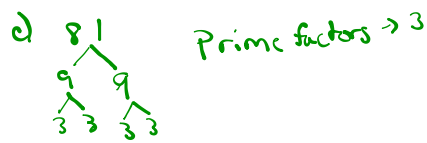
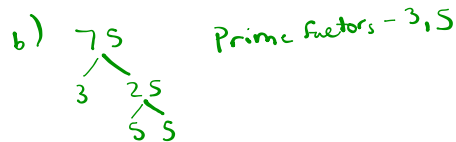
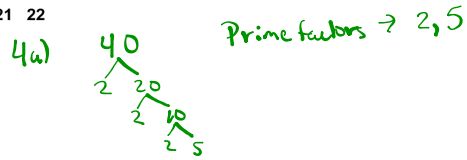
A 3 ^{a,b,c} 4 ^{a,b,c} 5 ^{a,b,c}

B ^{a,b,c} 6 7 8 ^{a,b} 9 ^{a,b,c} 10 ^{a,b,c} 11 12 13

14 ^{a,d} 15 ^{a,d} 16 ^{a,d} 17 18 20

C

21 22



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| | | | | | | | | | | | |
|---|----|----|----|----|----|----|----|----|----|----|----|
| A | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| B | 14 | 15 | 16 | 17 | 18 | 19 | 20 | | | | |
| C | 21 | 22 | | | | | | | | | |

$$8d) \begin{array}{r|rr} 3 & 81 & 216 \\ 3 & 27 & 72 \\ 3 & 9 & 24 \\ 3 & 3 & 8 \end{array}$$

GCF = $3 \times 3 \times 3 = 27$

$$8d) \begin{array}{r|rr} 2 & 180 & 224 \\ 2 & 90 & 112 \\ & 45 & 56 \end{array}$$

GCF = $2 \times 2 = 4$

$$f) \begin{array}{r|rr} 2 & 220 & 860 \\ 2 & 110 & 430 \\ 5 & 22 & 86 \\ & 11 & 43 \end{array}$$

GCF = $2 \times 2 \times 5 = 20$

9a) 150, 275, 420

| | | |
|-------|-------|-------|
| 1x150 | 1x275 | 1x420 |
| 2x75 | 5x55 | 2x210 |
| 3x50 | 11x25 | 3x140 |
| 5x30 | | 4x105 |
| 6x25 | | 5x84 |
| 10x15 | | 6x70 |
| | | 7x60 |
| | | 10x42 |
| | | 12x35 |
| | | 15x28 |
| | | 20x21 |

GCF = 5

$$5 \begin{array}{r|rr} 150 & 275 & 420 \\ 30 & 55 & 84 \end{array}$$

$$9d) \begin{array}{r|rr|rr} 2 & 126 & 240 & 546 & 714 \\ 3 & 63 & 120 & 273 & 357 \\ 7 & 21 & 35 & 91 & 119 \\ & 3 & 5 & 13 & 17 \end{array}$$

GCF = $2 \times 3 \times 7 = 42$

$$13) \begin{array}{r|rr} 2 & 42 & 36 \\ 3 & 21 & 18 \\ & 7 & 6 \end{array}$$

GCF = $2 \times 3 = 6$ in theory

$$15a) 5 \begin{array}{r|rr} 185 & 325 \\ 37 & 65 \end{array}$$

GCF = 5
So divide both numerator and denominator by 5

$$\frac{185}{325} = \frac{37}{65}$$

$$d) \begin{array}{r|rr} 2 & 840 & 1220 \\ 2 & 420 & 610 \\ 5 & 84 & 122 \\ & 42 & 61 \end{array}$$

GCF = $2 \times 2 \times 5 = 20$

$\frac{840}{20} = 42$
 $\frac{1220}{20} = 61$

16a) $\frac{9}{14} + \frac{11}{16}$

$$2 \begin{array}{r|rr} 14 & 16 \\ 7 & 8 \end{array}$$

LCM = $2 \times 7 \times 8 = 112$

$$\frac{9 \times 8}{14 \times 8} + \frac{11 \times 7}{16 \times 7}$$

$$\frac{72}{112} + \frac{77}{112}$$

$$\frac{149}{112}$$

d) $\frac{9x^2}{10x^2} + \frac{5x^2}{14x^2} + \frac{4}{21}$

$$\frac{63}{70} + \frac{25}{70} + \frac{4}{21}$$

$$\frac{88}{70} + \frac{4 \times 10}{21 \times 10}$$

$$\frac{264}{210} + \frac{40}{210}$$

$$\frac{304}{210} \text{ Reduce}$$

$$\frac{152}{105}$$

$$2 \begin{array}{r|rr} 10 & 14 \\ 5 & 7 \end{array}$$

LCM = 70

$$7 \begin{array}{r|rr} 10 & 21 \\ 10 & 3 \end{array}$$

Day 2

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A

3 ^{d,e,f} 4 5 ^{d,e,f}

B

^{d,f} 6 7 8 ^{b,d} 9 ^{b,d,f} 10 ^a 11 12 13

14 ^{b,c} 15 ^{b,c} 16 17 18 19 20

C

21 22

4 def → Tree

5 def → Tree

6 df → Tree

9 b~~x~~

10 bdf → Ladder

11 a

15 bc → Ladder ^{num/den}

16 bc → Ladder ^{LCM} _{of Denom}