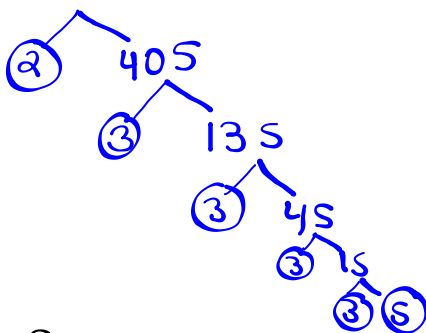


# Warm Up



List the product of primes for

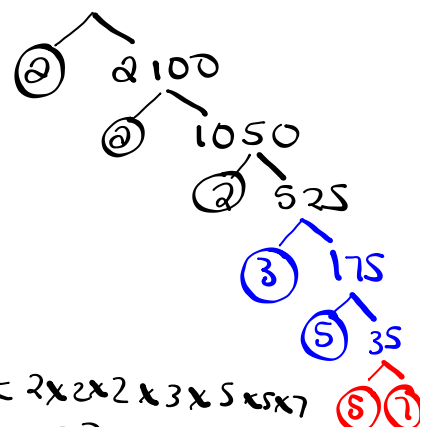
810



$$810 = 2 \times 3 \times 3 \times 3 \times 3 \times 5$$

$$= 2 \times 3^4 \times 5$$

4200

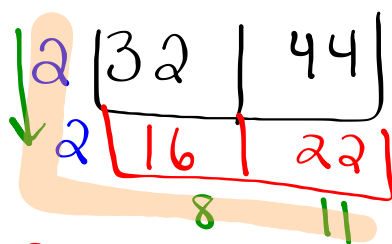


$$4200 = 2 \times 2 \times 2 \times 3 \times 5 \times 5 \times 7$$

$$= 2^3 \times 3 \times 5^2 \times 7$$

What is the least common multiple of 32 and 44 ?

Use Ladder Method



lowest common multiple

↳ multiply down outside ladder and bottom rung

$$LCM = 2 \times 2 \times 8 \times 11$$

$$= 352$$

Greatest Common Factor  
GCF.

→ multiply down outside ladder ↓

$$GCF = 2 \times 2$$

$$= 4$$

32, 44

Factors of 32

$1 \times 32$

$2 \times 16$

$4 \times 8$

1, 2, 4, 8, 16, 32

$GCF = 4$

Factors 44

$1 \times 44$

$2 \times 22$

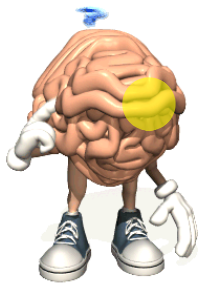
$4 \times 11$

1, 2, 4, 11, 22, 44

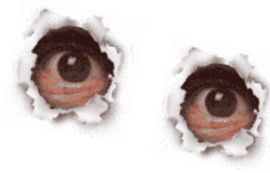
LCM (32, 44)

Multiples of 32 = 32, 64, 96, 128, 160,

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



# Warm Up



1. Use the least common multiple to help determine each answer.

a)  $\frac{8}{3} + \frac{5}{11}$

b)  $\frac{13}{5} - \frac{4}{7}$

c)  $\frac{1}{6} + \frac{1}{4}$

Exercises page 140

Homework Solutions

**A** a, b, c  
3 4 5 a, b, c

**B** a, b, c a, b, c a, b, c  
6 7 8 9 10 11 12 13  
14 15 16 17 18 20  
a, d a, d

**C**

21 22

4a)  $40$  Prime factors  $\rightarrow 2, 5$

```

    40
   /  \
  2   20
     /  \
    2   10
       /  \
      2   5
  
```

b)  $75$  Prime factors  $\rightarrow 3, 5$

```

    75
   /  \
  3   25
     /  \
    5   5
  
```

d)  $81$  Prime factors  $\rightarrow 3$

```

    81
   /  \
  9   9
 /  \ /  \
3  3 3  3
  
```

5a)  $45 = 5 \times 3 \times 3$

```

    45
   /  \
  5   9
     /  \
    3   3
  
```

b)  $80 = 2 \times 2 \times 2 \times 2 \times 5$

```

    80
   /  \
  2   40
     /  \
    2   20
       /  \
      2   10
         /  \
        2   5
  
```

c)  $96 = 2 \times 2 \times 2 \times 2 \times 2 \times 3$

```

    96
   /  \
  2   48
     /  \
    2   24
       /  \
      2   12
         /  \
        2   6
           /  \
          2   3
  
```

6a)  $600 = 2 \times 2 \times 2 \times 3 \times 5 \times 5$   
 $= 2^3 \times 3 \times 5^2$

```

    600
   /  \
  2   300
     /  \
    2   150
       /  \
      2   75
         /  \
        3   25
           /  \
          5   5
  
```

c)  $10 \ 22$

```

    10  22
   /  \
  2   5  11
  
```

Exercises page 140

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

$$8a) \quad 2 \left| \begin{array}{c|c} 46 & 89 \\ \hline 23 & 42 \end{array} \right.$$

GCF = 2

$$b) \quad 2 \left| \begin{array}{c|c} 64 & 120 \\ \hline 32 & 60 \\ \hline 16 & 30 \\ \hline 8 & 15 \end{array} \right.$$

GCF =  $2 \times 2 \times 2 = 8$

$$8d) \quad 3 \left| \begin{array}{c|c} 81 & 216 \\ \hline 27 & 72 \\ \hline 9 & 24 \\ \hline 3 & 8 \end{array} \right.$$

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

$$8d) \quad 2 \left| \begin{array}{c|c} 180 & 224 \\ \hline 90 & 112 \\ \hline 45 & 56 \end{array} \right.$$

GCF =  $2 \times 2 = 4$

$$e) \quad 2 \left| \begin{array}{c|c} 160 & 672 \\ \hline 80 & 336 \\ \hline 40 & 168 \\ \hline 20 & 84 \\ \hline 10 & 42 \\ \hline 5 & 21 \end{array} \right.$$

GCF =  $2^5 = 32$

$$f) \quad 2 \left| \begin{array}{c|c} 220 & 860 \\ \hline 110 & 430 \\ \hline 55 & 215 \\ \hline 11 & 43 \end{array} \right.$$

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

$$5 \left| \begin{array}{c|c} 150 & 275 & 420 \\ \hline 30 & 55 & 84 \end{array} \right.$$

$$9d) \quad 2 \left| \begin{array}{c|c|c|c} 126 & 240 & 546 & 714 \\ \hline 63 & 120 & 273 & 357 \\ \hline 21 & 40 & 91 & 119 \\ \hline 7 & 5 & 13 & 17 \end{array} \right.$$

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

$$13) \quad 2 \left| \begin{array}{c|c} 42 & 36 \\ \hline 21 & 18 \\ \hline 7 & 6 \end{array} \right.$$

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

$$15a) \quad 5 \left| \begin{array}{c|c} 185 & 325 \\ \hline 37 & 65 \end{array} \right.$$

GCF = 5

So divide both numerator and denominator by 5

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

$$d) \quad 2 \left| \begin{array}{c|c} 840 & 1220 \\ \hline 420 & 610 \\ \hline 210 & 305 \\ \hline 42 & 61 \end{array} \right.$$

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

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

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

$$2 \left| \begin{array}{c|c} 14 & 16 \\ \hline 7 & 8 \end{array} \right.$$

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

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

$$\frac{72}{112} + \frac{77}{112} = \frac{149}{112}$$

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

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

$$\frac{36 \times 3}{70 \times 3} + \frac{4 \times 5}{21 \times 5}$$

$$\frac{108}{210} + \frac{20}{210}$$

$$\frac{128}{210} \text{ Reduce} = \frac{64}{105}$$

$$2 \left| \begin{array}{c|c} 10 & 14 \\ \hline 5 & 7 \end{array} \right.$$

LCM = 70

$$7 \left| \begin{array}{c|c} 70 & 21 \\ \hline 10 & 3 \end{array} \right.$$

## Ladder Method

Find the GCF a) 48 &amp; 56

2	48	56
2	24	28
2	12	14
	6	7

$$\text{GCF} = 2 \times 2 \times 2 \\ = 8$$

b) 336 &amp; 448

2	336	448
2	168	224
2	84	112
2	42	56
7	21	28
	3	4

$$\text{GCF} = 2 \times 2 \times 2 \times 2 \times 7 \\ = 112$$

Find the LCM a) 16 &amp; 98

2	16	98
	8	49

$$\text{LCM} = 2 \times 8 \times 49 \\ = 784$$

b) 18 &amp; 42

2	18	42
3	9	21
	3	7

$$\text{LCM} = 2 \times 3 \times 3 \times 7 \\ = 252$$

$$\text{GCF} = 2 \times 3 \\ = 6$$

## Day 2

## Exercises page 140

A

3 4<sup>d,e,f</sup> 5<sup>d,e,f</sup>

B

6<sup>d,d,f</sup> 7 8 9<sup>b,d</sup> 10<sup>b,d,f</sup> a 11 12 1314 15<sup>b,c</sup> 16<sup>b,c</sup> 17 18 19 20

C

21 22

4 d e f

5 d e f

6 d f

10 b d f

15 b

16 b