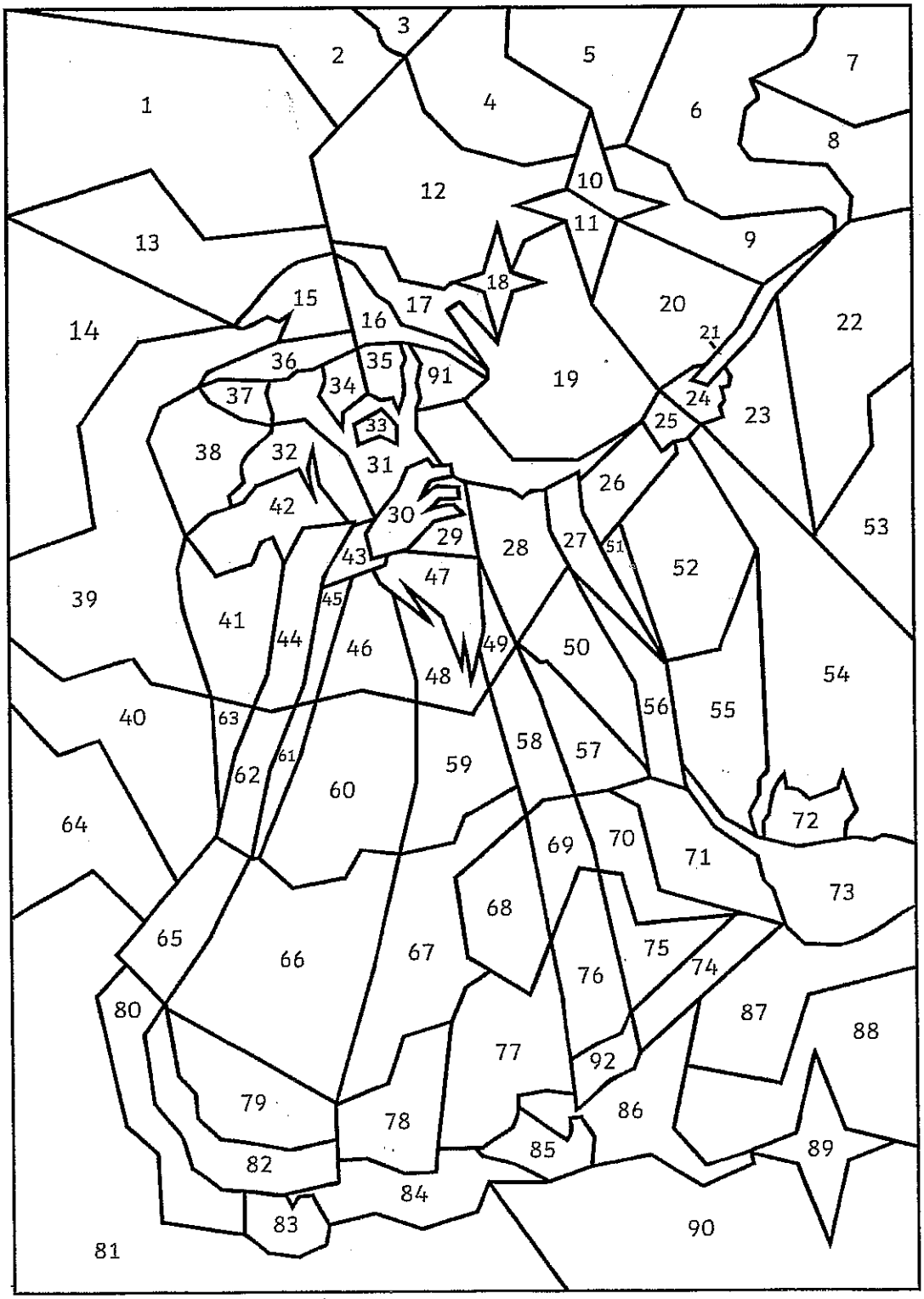
Highest Common Factor and Lowest Common Multiple

Work out the lowest common multiple (LCM) or highest common factor (HCF) of the pair of numbers given in each set of brackets. Then, locate this number in the key to find out with colour to shade this section.

Purple	Pink	Yellow	Grey	Light Blue	Dark Blue	Skin Tone	Brown
40 or above	9	12	4	20	10	6	3



- [ ] 1. LCM (40, 10)
- [ ] 2. HCF (110, 165)
- [ ] 3. HCF (18, 27)
- [ ] 4. LCM (3, 9)
- [ ] 5. HCF (27, 36)
- [ ] 6. HCF (18, 45)
- [ ] 7. LCM (5, 16)
- [ ] 8. LCM (35, 10)
- [ ] 9. LCM (15, 4)
- [ ] 10. LCM (4, 12)
- [ ] 11. HCF (48, 60)
- [ ] 12. HCF (180, 270)
- [ ] 13. LCM (14, 5)
- [ ] 14. LCM (10, 50)
- [ ] 15. HCF (100, 60)
- [ ] 16. LCM (20, 2)
- [ ] 17. HCF (80, 120)
- [ ] 18. LCM (4, 6)
- [ ] 19. LCM (68, 34)
- [ ] 20. HCF (60, 120)
- [ ] 21. HCF (15, 18)
- [ ] 22. LCM (55, 5)
- [ ] 23. HCF (240, 200)
- [ ] 24. LCM (3, 6)
- [ ] 25. HCF (12, 18)
- [ ] 26. HCF (10, 20)
- [ ] 27. HCF (12, 24)
- [ ] 28. LCM (4, 20)
- [ ] 29. HCF (8, 12)
- [ ] 30. HCF (36, 30)
- [ ] 31. HCF (16, 20)
- [ ] 32. HCF (24, 20)
- [ ] 33. LCM (2, 3)
- [ ] 34. HCF (24, 30)
- [ ] 35. HCF (42, 24)
- [ ] 36. HCF (120, 100)
- [ ] 37. LCM (2, 5)
- [ ] 38. HCF (160, 240)
- [ ] 39. LCM (30, 60)
- [ ] 40. HCF (50, 100)
- [ ] 41. HCF (60, 80)
- [ ] 42. LCM (10, 20)
- [ ] 43. HCF (50, 70)
- [ ] 44. HCF (24, 36)
- [ ] 45. HCF (12, 36)
- [ ] 46. LCM (10, 4)
- [ ] 47. LCM (2, 4)
- [ ] 48. HCF (40, 50)
- [ ] 49. LCM (5, 20)
- [ ] 50. HCF (20, 40)
- [ ] 51. LCM (6, 12)
- [ ] 52. HCF (40, 80)
- [ ] 53. LCM (20, 8)
- [ ] 54. LCM (5, 12)
- [ ] 55. LCM (30, 45)
- [ ] 56. HCF (60, 12)
- [ ] 57. LCM (25, 50)
- [ ] 58. HCF (40, 140)
- [ ] 59. HCF (30, 50)
- [ ] 60. HCF (200, 60)
- [ ] 61. HCF (36, 48)
- [ ] 62. LCM (3, 4)
- [ ] 63. HCF (40, 100)
- [ ] 64. HCF (140, 350)
- [ ] 65. LCM (52, 13)
- [ ] 66. HCF (140, 80)
- [ ] 67. LCM (5, 10)
- [ ] 68. LCM (10, 2)
- [ ] 69. HCF (40, 60)
- [ ] 70. LCM (13, 4)
- [ ] 71. HCF (100, 150)
- [ ] 72. HCF (120, 180)
- [ ] 73. LCM (9, 10)
- [ ] 74. LCM (5, 11)
- [ ] 75. LCM (16, 20)
- [ ] 76. HCF (100, 140)
- [ ] 77. HCF (10, 30)
- [ ] 78. HCF (50, 90)
- [ ] 79. LCM (4, 5)
- [ ] 80. LCM (10, 8)
- [ ] 81. HCF (200, 300)
- [ ] 82. HCF (36, 60)
- [ ] 83. HCF (9, 12)
- [ ] 84. LCM (80, 5)
- [ ] 85. HCF (6, 15)
- [ ] 86. LCM (12, 10)
- [ ] 87. LCM (20, 3)
- [ ] 88. LCM (10, 25)
- [ ] 89. LCM (4, 17)
- [ ] 90. LCM (50, 20)
- [ ] 91. HCF (20, 30)
- [ ] 92. HCF (48, 12)

MARIAN SMALL

OPEN QUESTIONS
FOR RICH MATH LESSONS

GRADE LEVELS
4 5 6

NUMBER STRAND

WORKING ON IT

Think of numbers less than 100 that have exactly four factors. List as many as you can.
What else do these numbers have in common?

SAMPLE RESPONSE

Some numbers include 6, 8, 10, 14, 15, 21, 22, 26, 27, and 35. All of them have a factor of 1. All of them have at least 2 one-digit or two-digit factors.

Choose a number less than 100. Use linking cubes to show all the factors of your number.
Repeat with another number.

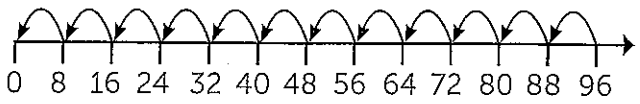
SAMPLE RESPONSE

I chose 36. My linking cubes are in arrays: 1-by-36, 2-by-18, 3-by-12, 4-by-9, and 6-by-6.

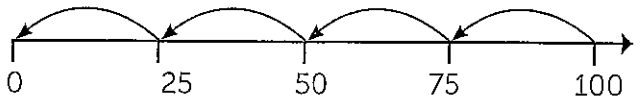
Draw jumps on a number line to show each situation.
a) 12 is a factor of 96.
b) 8 is a factor of 96.
c) 4 is a factor of 100.
d) 7 is a factor of 56.
e) 3 is a factor of 42.

SAMPLE RESPONSE

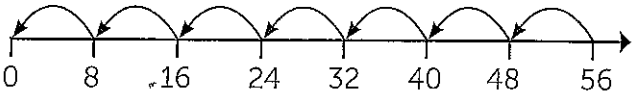
a), b) $96 \div 8 = 12$ or $96 \div 12 = 8$



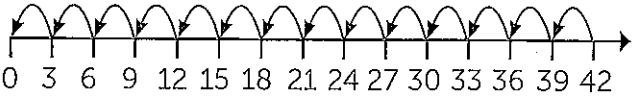
c) $100 \div 4 = 25$



d) $56 \div 7 = 8$



e) $42 \div 3 = 14$



Every fourth multiple of one number matches every sixth multiple of another number. What could the numbers be?

SAMPLE RESPONSE

They could be 4 and 6 since the sixth multiple of 4 is 6×4 and the fourth multiple of 6 is 4×6.
$6 \times 4 = 4 \times 6$ OR
They could be 4 and 6.
Multiples of 4:
4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48, ...
Multiples of 6:
6, 12, 18, 24, 30, 36, 42, 48, 54, 60, 66, ... OR
It could be the multiples of 8 and 12 since the multiples of 8 are double the multiples of 4, and the multiples of 12 are double the multiples of 6. The circled multiples in the lists for 4 and 6 will be doubled but still equal.

2 Composite Numbers and Prime Numbers

3. Demonstrate an understanding of factors and multiples by:
   - determining multiples and factors of numbers less than 100
   - identifying prime and composite numbers
   - solving problems involving multiples.

   [PS, R, V]

GETTING STARTED

Q A number can be divided by a lot of numbers without a remainder. Another number cannot be divided by a lot of numbers without a remainder. What could the numbers be? What could the factors be for each number?

SAMPLE RESPONSE

36 and 37
You can divide 36 by 1, 2, 3, 4, 6, 9, 12, 18, and 36, but the only factors of 37 are 1 and 37. OR
24 and 22
The factors of 24 are 1, 2, 3, 4, 6, 8, 12, and 24. The only factors of 22 are 1, 2, 11, and 22.

Q One number has a lot of factors, but the next greater number has only two factors. What could the numbers be?

SAMPLE RESPONSE

60 and 61
The factors of 60 are 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, and 30, but the only factors of 61 are 1 and 61.

Q Name a number less than 100 for which it is easy to tell if it has a lot of factors. Why is it easy for you?

SAMPLE RESPONSE

90. It is easy to tell it has a lot of factors since any factor of 10 is also a factor of 90, and 10 has four factors.

Q Which number do you think does not belong?

41 14 24 16

SAMPLE RESPONSE

41 does not belong since it does not have a lot of factors. OR
16 does not belong since there is no 4 in it. OR
24 does not belong since it does not have a 1 in it.

CONSOLIDATING

Q You are asked whether a number that is greater than 70 is a composite number or a prime number. What would make it easy for you to answer the question?

SAMPLE RESPONSE

If the number is even, it will definitely be a composite number. If it ends with a 5, it will also be a composite number.

Q Why does it make sense that there are more composite numbers than prime numbers?

SAMPLE RESPONSE

It makes sense because even numbers are composite, and they make up half the numbers. There are also some odd composites, so more than half the numbers must be composite numbers. OR
Between 1 and 20, there are more composite numbers than prime numbers, so it makes sense for that pattern to continue and be true for all numbers.

Q Suppose you know that 60 is a composite number. How can you use this information to identify other composite numbers?

SAMPLE RESPONSE

120 is a composite number since it's double 60, and so it has all the same factors as 60 and even more. OR
If you add any multiple of 3 to 60, it is a composite number since if you can make groups of 3 out of 60, you can also make groups of 3 out of the new number.

4	7	9	12
9	13	5	4
6	6	13	17
15	7	7	6
32	12	1	18

3	10	3	2
9	13	5	4
4	6	4	3
4	11	2	8
8	9	14	9

Greatest common factor (GCF)

Grade 5 Factoring Worksheet

Find the greatest common factor of the two numbers shown.

1. 12 _____ ___
   26 _____

2. 30 _____ ___
   40 _____

3. 35 _____ ___
   28 _____

4. 21 _____ ___
   15 _____

5. 33 _____ ___
   15 _____

6. 27 _____ ___
   3 _____

7. 36 _____ ___
   33 _____

8. 30 _____ ___
   5 _____

9. 30 _____ ___
   6 _____

10. 16 _____ ___
    4 _____

Lowest common multiple (LCM)

Grade 5 Factoring Worksheet

Find the lowest common multiple.

1. 4, 22 _____ ____
2. 6, 24 _____ ____
3. 8, 6 _____ ____
4. 3, 4 _____ ____
5. 10, 23 _____ ____
6. 2, 4 _____ ____
7. 16, 24 _____ ____
8. 28, 6 _____ ____
9. 10, 19 _____ ____
10. 14, 28 _____ ____
11. 7, 3 _____ ____
12. 4, 29 _____ ____
13. 19, 9 _____ ____
14. 9, 11 _____ ____