

## LESSON 4

# Greatest Common Factor

The greatest common factor, “GCF” of two or more whole numbers can be found by inspecting their prime factorizations for like primes.

Example 1: Find the greatest common factor of 12 and 18.

- Write a prime factorization for both numbers
- Underline the like primes
- Multiply the primes that have been underlined in either factorization  $2 \times 3 = 6$
- Therefore the greatest common factor of  $(12, 18) = 6$

$$12 = \underline{2} \times 2 \times \underline{3}$$

$$18 = \underline{2} \times \underline{3} \times 3$$

Example 2: Find the gcf of 54, 72, 90

$$54 = \underline{2} \times \underline{3} \times \underline{3} \times 3$$

$$72 = \underline{2} \times 2 \times 2 \times \underline{3} \times \underline{3}$$

$$90 = \underline{2} \times \underline{3} \times \underline{3} \times 5$$

$$\text{GCF}(54, 72, 90) = \underline{2} \times \underline{3} \times \underline{3} = 18$$

If there are no primes in common the gcf = 1.

The numbers are relatively prime to each other.

# Find The GCF Of Each Group Of Numbers Using Prime Factorizations

1. $20 = \underline{2} \times 2 \times \underline{5}$ $90 = \underline{2} \times 3 \times 3 \times \underline{5}$	GCF <b>10</b>	11. $85 =$ $95 =$	
2. $42 =$ $98 =$		12. $32 =$ $60 =$	
3. $27 =$ $63 =$		13. $18 =$ $30 =$	
4. $48 =$ $64 =$		14. $34 =$ $51 =$	
5. $39 =$ $91 =$		15. $49 =$ $63 =$	
6. $46 =$ $69 =$		16. $57 =$ $76 =$	
7. $30 =$ $78 =$		17. $66 =$ $88 =$	
8. $54 =$ $81 =$		18. $54 =$ $72 =$	
9. $44 =$ $77 =$		19. $49 =$ $70 =$	
10. $64 =$ $96 =$		20. $38 =$ $76 =$	

# Find The GCF Of Each Group Of Numbers Using Prime Factorizations

21. 30 = 85 =	GCF 5	31. 27 = 81 =	
22. 56 = 98 =		32. 60 = 72 =	
23. 36 = 90 =		33. 36 = 60 =	
24. 44 = 66 =		34. 84 = 96 =	
25. 45 = 60 =		35. 15 = 90 =	
26. 48 = 80 =		36. 58 = 87 =	
27. 72 = 90 =		37. 45 = 75 =	
28. 64 = 80 =		38. 48 = 72 =	
29. 27 = 90 =		39. 65 = 91 =	
30. 68 = 85 =		40. 66 = 72 =	

# Find The GCF Of Each Group Of Numbers Using Prime Factorizations

<p>41.</p> $9 = \underline{3 \times 3}$ $36 = 2 \times 2 \times \underline{3 \times 3}$ $54 = 2 \times \underline{3 \times 3} \times 3$	9	<p>46.</p> $30 =$ $45 =$ $75 =$
<p>42.</p> $24 =$ $60 =$ $84 =$		<p>47.</p> $24 =$ $30 =$ $60 =$
<p>43.</p> $18 =$ $30 =$ $90 =$		<p>48.</p> $32 =$ $48 =$ $80 =$
<p>44.</p> $48 =$ $80 =$ $96 =$		<p>49.</p> $34 =$ $51 =$ $85 =$
<p>45.</p> $12 =$ $36 =$ $42 =$		<p>50.</p> $18 =$ $45 =$ $75 =$