

Starter 13 JAN 2017

Find the GCF for each pair of numbers.

1)  $324, 252$   
 $324 = 2 \cdot 162 = 2 \cdot 2 \cdot 81 = 2 \cdot 2 \cdot 3 \cdot 27 = 2 \cdot 2 \cdot 3 \cdot 3 \cdot 9 = 2 \cdot 2 \cdot 3 \cdot 3 \cdot 3 \cdot 3$   
 $252 = 2 \cdot 126 = 2 \cdot 2 \cdot 63 = 2 \cdot 2 \cdot 3 \cdot 21 = 2 \cdot 2 \cdot 3 \cdot 3 \cdot 7$   
 GCF:  $2 \cdot 2 \cdot 3 = 12$

2)  $80, 112$   
 $80 = 4 \cdot 20 = 4 \cdot 2 \cdot 10 = 4 \cdot 2 \cdot 2 \cdot 5 = 2^4 \cdot 5$   
 $112 = 4 \cdot 28 = 4 \cdot 2 \cdot 14 = 4 \cdot 2 \cdot 2 \cdot 7 = 2^4 \cdot 7$   
 GCF:  $2^4 = 16$

3)  $216, 72$   
 $216 = 4 \cdot 54 = 4 \cdot 6 \cdot 9 = 4 \cdot 2 \cdot 3 \cdot 3 \cdot 3 = 2^3 \cdot 3^3$   
 $72 = 2 \cdot 36 = 2 \cdot 4 \cdot 9 = 2 \cdot 2 \cdot 2 \cdot 3 \cdot 3 = 2^3 \cdot 3^2$   
 GCF:  $2^3 \cdot 3^2 = 72$

Starter 13 JAN 2017

Find the GCF for each pair of numbers.

1)  $324, 252$   
 $324 = 2 \cdot 162 = 2 \cdot 2 \cdot 81 = 2 \cdot 2 \cdot 3 \cdot 27 = 2 \cdot 2 \cdot 3 \cdot 3 \cdot 9 = 2 \cdot 2 \cdot 3 \cdot 3 \cdot 3 \cdot 3$   
 $252 = 2 \cdot 126 = 2 \cdot 2 \cdot 63 = 2 \cdot 2 \cdot 3 \cdot 21 = 2 \cdot 2 \cdot 3 \cdot 3 \cdot 7$   
 GCF:  $2 \cdot 2 \cdot 3 = 12$

2)  $80, 112$   
 $80 = 2 \cdot 40 = 2 \cdot 2 \cdot 20 = 2 \cdot 2 \cdot 2 \cdot 10 = 2 \cdot 2 \cdot 2 \cdot 2 \cdot 5 = 2^4 \cdot 5$   
 $112 = 2 \cdot 56 = 2 \cdot 2 \cdot 28 = 2 \cdot 2 \cdot 2 \cdot 14 = 2 \cdot 2 \cdot 2 \cdot 2 \cdot 7 = 2^4 \cdot 7$   
 GCF:  $2^4 = 16$

3)  $216, 72$   
 $216 = 2 \cdot 108 = 2 \cdot 2 \cdot 54 = 2 \cdot 2 \cdot 2 \cdot 27 = 2 \cdot 2 \cdot 2 \cdot 3 \cdot 9 = 2 \cdot 2 \cdot 2 \cdot 3 \cdot 3 \cdot 3 = 2^3 \cdot 3^3$   
 $72 = 2 \cdot 36 = 2 \cdot 2 \cdot 18 = 2 \cdot 2 \cdot 2 \cdot 9 = 2 \cdot 2 \cdot 2 \cdot 3 \cdot 3 = 2^3 \cdot 3^2$   
 GCF:  $2^3 \cdot 3^2 = 72$

Starter 13 JAN 2017

Find the GCF for each pair of numbers.

1)  $324, 252$   
 $324 = 2 \cdot 162 = 2 \cdot 2 \cdot 81 = 2 \cdot 2 \cdot 3 \cdot 27 = 2 \cdot 2 \cdot 3 \cdot 3 \cdot 9 = 2 \cdot 2 \cdot 3 \cdot 3 \cdot 3 \cdot 3$   
 $252 = 2 \cdot 126 = 2 \cdot 2 \cdot 63 = 2 \cdot 2 \cdot 3 \cdot 21 = 2 \cdot 2 \cdot 3 \cdot 3 \cdot 7$   
 GCF:  $2 \cdot 2 \cdot 3 = 12$

2)  $80, 112$   
 $80 = 2 \cdot 40 = 2 \cdot 2 \cdot 20 = 2 \cdot 2 \cdot 2 \cdot 10 = 2 \cdot 2 \cdot 2 \cdot 2 \cdot 5 = 2^4 \cdot 5$   
 $112 = 2 \cdot 56 = 2 \cdot 2 \cdot 28 = 2 \cdot 2 \cdot 2 \cdot 14 = 2 \cdot 2 \cdot 2 \cdot 2 \cdot 7 = 2^4 \cdot 7$   
 GCF:  $2^4 = 16$

3)  $216, 72$   
 $216 = 2 \cdot 108 = 2 \cdot 2 \cdot 54 = 2 \cdot 2 \cdot 2 \cdot 27 = 2 \cdot 2 \cdot 2 \cdot 3 \cdot 9 = 2 \cdot 2 \cdot 2 \cdot 3 \cdot 3 \cdot 3 = 2^3 \cdot 3^3$   
 $72 = 2 \cdot 36 = 2 \cdot 2 \cdot 18 = 2 \cdot 2 \cdot 2 \cdot 9 = 2 \cdot 2 \cdot 2 \cdot 3 \cdot 3 = 2^3 \cdot 3^2$   
 GCF:  $2^3 \cdot 3^2 = 72$

Homework answers

1)  $144, 36$   
 $\frac{144}{36} = 4$        $\frac{36}{36} = 1$   
 GCF:  $36$

②

48	144
2 · 24	2 · 72
2 · 2 · 12	2 · 2 · 36
2 · 2 · 2 · 6	2 · 2 · 2 · 18
2 · 2 · 2 · 2 · 3	2 · 2 · 2 · 2 · 9
48	48 · 3

GCF 48

③

363	44
3 · 121	2 · 22
3 · 11 · 11	2 · 2 · 11

GCF 11

Factoring polynomials by removing the GCF.  
Factor, write prime if prime.

$12a^3b + 15ab^3 = 3ab(4a^2 + 5b^2)$

1.  $6x + 3$   
 $3(2x + 1)$

2.  $24x^2 - 8x$   
 $8x(3x - 1)$

3.  $6x - 12$

$$6(x - 2)$$

Check  $6x - 12$  ✓

4.  $2x^2 + 8x$

$$2x(x + 4)$$

8.  $12x^2 - 9x + 15$

$$3(4x^2 - 3x + 5)$$

9.  $3n^3 - 12n^2 - 30n$

$$3n(n^2 - 4n - 10)$$

Finish the worksheet

**II. Greatest Common Monomial Factor**

Factor, write prime if prime.

$$12a^3b + 15ab^3 = 3ab(4a^2 + 5b^2)$$

- |                      |                                      |
|----------------------|--------------------------------------|
| 1. $6x + 3$          | 8. $12x^2 - 9x + 15$                 |
| 2. $24x^2 - 8x$      | 9. $3n^3 - 12n^2 - 30n$              |
| 3. $6x - 12$         | 10. $9m^2 - 4n + 12$                 |
| 4. $2x^2 + 8x$       | 11. $2x^3 - 3x^2 + 5x$               |
| 5. $4x + 10$         | 12. $13m + 26m^2 - 39m^3$            |
| 6. $10x^2 + 35x$     | 13. $17x^2 + 34x + 51$               |
| 7. $10x^2y - 15xy^2$ | 14. $18m^2n^4 - 12m^2n^3 + 24m^2n^2$ |