

**INTRO TO FACTORS PRACTICE SHEET - A**

**ANSWERS - PAGE 1**

**HELPFUL EXAMPLE**

**MATHEMATICAL DEFINITION**  
A **FACTOR** IS A NUMBER THAT DIVIDES EXACTLY INTO A GIVEN NUMBER.

**SIMPLE DEFINITION**  
THE WORD, **FACTOR**, IS ASKING, "WHAT CAN YOU DIVIDE THE NUMBER BY?"

LIST AT LEAST FOUR FACTORS FOR EACH NUMBER.

**8**  
 $8 \div 2 = 4$   
 $8 \div 4 = 2$   
 $8 \div 8 = 1$   
 $8 \div 1 = 8$   
 SO, 2, 4, 8, AND 1 ARE ALL FACTORS OF 8.

**20**  
 $20 \div 4 = 5$   
 $20 \div 5 = 4$   
 $20 \div 10 = 2$   
 $20 \div 2 = 10$   
 $20 \div 20 = 1$   
 $20 \div 1 = 20$   
 SO, 4, 5, 2, 10, 20, AND 1 ARE ALL FACTORS OF 20.

**IMPORTANT NOTE**  
SEE HOW ALL THE ANSWERS ARE WHOLE NUMBERS.

LIST AT LEAST FOUR FACTORS FOR EACH NUMBER.

**18**  
 $18 \div 1 = 18$   
 $18 \div 18 = 1$   
 $18 \div 2 = 9$   
 $18 \div 9 = 2$   
 $18 \div 3 = 6$   
 $18 \div 6 = 3$

**45**  
 $45 \div 3 = 15$   
 $45 \div 15 = 3$   
 $45 \div 5 = 9$   
 $45 \div 9 = 5$   
 $45 \div 1 = 45$   
 $45 \div 45 = 1$

FACTORS OF 18: 1, 2, 3, 6, 9, 18  
 FACTORS OF 45: 1, 3, 5, 9, 15, 45

**21** FACTORS OF 21: 1, 3, 7, 21

**30** FACTORS OF 30: 1, 2, 3, 5, 6, 10, 15, 30

**24** FACTORS OF 24: 1, 2, 3, 4, 6, 8, 12, 24

**32** FACTORS OF 32: 1, 2, 4, 8, 16, 32

**28** FACTORS OF 28: 1, 2, 4, 7, 14, 28

**16** FACTORS OF 16: 1, 2, 4, 8, 16

**12** FACTORS OF 12: 1, 2, 3, 4, 6, 12

**50** FACTORS OF 50: 1, 2, 5, 10, 25, 50

**48** FACTORS OF 48: 1, 2, 4, 6, 8, 12, 24, 48

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**ANSWERS - PAGE 2**

**HELPFUL EXAMPLE**

FIND AT LEAST THREE COMMON FACTORS FOR 8 AND 20.

**8**  
 $8 \div 1 = 8$   
 $8 \div 2 = 4$   
 $8 \div 4 = 2$   
 $8 \div 8 = 1$

**20**  
 $20 \div 1 = 20$   
 $20 \div 2 = 10$   
 $20 \div 4 = 5$   
 $20 \div 5 = 4$   
 $20 \div 10 = 2$   
 $20 \div 20 = 1$

**SIMPLE DEFINITION**  
THE WORD, **COMMON**, MEANS THE SAME.

FACTORS OF 8: 1, 2, 4, 8  
 FACTORS OF 20: 1, 2, 4, 5, 10, 20  
**\*\* COMMON FACTORS: 1, 2, 4 \*\***

**IMPORTANT NOTE**  
WHAT THIS TELLS US IS THAT BOTH 8 AND 20 CAN BE DIVIDED BY 1, 2, OR 4.

FIND AT LEAST THREE COMMON FACTORS FOR EACH SET OF NUMBERS.

**20** and **32**  
 $20 \div 1 = 20$   
 $20 \div 20 = 1$   
 $20 \div 4 = 5$   
 $20 \div 5 = 4$   
 $20 \div 2 = 10$   
 $20 \div 10 = 2$   
**1, 2, 4** ARE COMMON FACTORS OF 20 AND 32

**24** and **8**  
 $24 \div 1 = 24$   
 $24 \div 24 = 1$   
 $24 \div 4 = 6$   
 $24 \div 6 = 4$   
 $24 \div 3 = 8$   
 $24 \div 8 = 3$   
**1, 2, 4, 8** ARE COMMON FACTORS OF 24 AND 8

**56** and **16**  
 $56 \div 1 = 56$   
 $56 \div 56 = 1$   
 $56 \div 4 = 14$   
 $56 \div 14 = 4$   
 $56 \div 2 = 28$   
 $56 \div 28 = 2$   
**1, 2, 4, 8** ARE COMMON FACTORS OF 56 AND 16

**40** and **60**  
 $40 \div 1 = 40$   
 $40 \div 40 = 1$   
 $40 \div 2 = 20$   
 $40 \div 5 = 8$   
 $40 \div 8 = 5$   
 $40 \div 4 = 10$   
 $40 \div 10 = 4$   
**1, 2, 4, 5, 10, 20** ARE COMMON FACTORS OF 40 AND 60

**9** and **27**  
 $9 \div 1 = 9$   
 $9 \div 9 = 1$   
 $9 \div 3 = 3$   
**1, 3, 9** ARE COMMON FACTORS OF 9 AND 27

**15** and **45**  
 $15 \div 1 = 15$   
 $15 \div 15 = 1$   
 $15 \div 3 = 5$   
 $15 \div 5 = 3$   
**1, 3, 5, 15** ARE COMMON FACTORS OF 15 AND 45

**42** and **28**  
 $42 \div 1 = 42$   
 $42 \div 42 = 1$   
 $42 \div 2 = 21$   
 $42 \div 3 = 14$   
 $42 \div 6 = 7$   
 $42 \div 7 = 6$   
 $42 \div 14 = 3$   
 $42 \div 21 = 2$   
**1, 2, 7, 14** ARE COMMON FACTORS OF 42 AND 28

**14** and **56**  
 $14 \div 1 = 14$   
 $14 \div 14 = 1$   
 $14 \div 2 = 7$   
 $14 \div 7 = 2$   
**1, 2, 7, 14** ARE COMMON FACTORS OF 14 AND 56

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**LET'S MAKE THIS A LITTLE EASIER!**

**RULE FOR #2**  
YOU CAN DIVIDE ANY EVEN NUMBER BY 2.  
SO, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, AND SO ON CAN BE DIVIDED BY 2.

**RULE FOR #3**  
IF YOU ADD THE DIGITS OF A NUMBER AND CAN DIVIDE IT BY 3 THEN YOU CAN DIVIDE THE ACTUAL NUMBER BY 3.  
EXAMPLE:  $114 = 1 + 1 + 4 = 6$ . SINCE YOU CAN DIVIDE 6 BY 3, YOU CAN DIVIDE 114 BY 3.

**RULE FOR #5**  
ANY NUMBER ENDING IN A 0 OR 5 CAN BE DIVIDED BY 5.  
SO, 5, 10, 15, 20, 25, 30, 35, 40, 50, AND SO ON CAN BE DIVIDED BY 5.

**!! THESE RULES WORK FOR ANY WHOLE NUMBER !!**

CAN THESE NUMBERS BE DIVIDED BY 2, 3, OR 5?

**30**  
 $30 \div 2 = 15$   
 $30 \div 3 = 10$   
 $30 \div 5 = 6$

2, 3, AND 5 ARE FACTORS OF 30.

**64**  
 $64 \div 2 = 32$   
 $64 \div 10 = \text{NO}$   
 $64 \div 5 = \text{NO}$

2 IS A FACTOR OF 64.

**75**  
 $75 \div 3 = 25$   
 $75 \div 5 = 15$   
**3, 5** ARE FACTORS OF 75.

**43**  
**NONE** ARE FACTORS OF 43.

**90**  
 $90 \div 2 = 45$   
 $90 \div 3 = 30$   
 $90 \div 5 = 18$   
**2, 3, 5** ARE FACTORS OF 90.

**57**  
**3** IS A FACTOR OF 57.

**132**  
 $132 \div 2 = 66$   
 $132 \div 3 = 44$   
 $132 \div 5 = \text{NO}$   
**2, 3** ARE FACTORS OF 132.

**600**  
**2, 3, 5** ARE FACTORS OF 600.

**354**  
 $354 \div 2 = 177$   
 $354 \div 3 = 118$   
 $354 \div 5 = \text{NO}$   
**2, 3** ARE FACTORS OF 354.

**255**  
**3, 5** ARE FACTORS OF 255.

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**HELPFUL EXAMPLE**  
FIND THE GREATEST COMMON FACTOR OF 8 AND 20.

**8**  
 $8 \div 1 = 8$   
 $8 \div 2 = 4$   
 $8 \div 4 = 2$   
 $8 \div 8 = 1$

**20**  
 $20 \div 1 = 20$   
 $20 \div 2 = 10$   
 $20 \div 4 = 5$   
 $20 \div 5 = 4$   
 $20 \div 10 = 2$   
 $20 \div 20 = 1$

**SIMPLE DEFINITION**  
THE WORD, **GREATEST COMMON FACTOR**, MEANS THE LARGEST FACTOR THEY HAVE THE SAME.

FACTORS OF 8: 1, 2, 4, 8  
 FACTORS OF 20: 1, 2, 4, 5, 10, 20  
**\*\* 4 IS THE LARGEST ONE THEY HAVE THE SAME \*\***

**IMPORTANT NOTE**  
GREATEST COMMON FACTOR IS ALSO CALLED, GCF.  
SO, 4 IS THE GREATEST COMMON FACTOR OF 8 AND 20.

FIND THE GREATEST COMMON FACTOR FOR EACH SET OF NUMBERS.

**10** and **20**  
**10** IS THE GCF OF 10 AND 20.

**12** and **28**  
**4** IS THE GCF OF 12 AND 28.

**56** and **16**  
**8** IS THE GCF OF 56 AND 16.

**36** and **24**  
**12** IS THE GCF OF 36 AND 24.

**30** and **45**  
**15** IS THE GCF OF 30 AND 45.

**20** and **8**  
**4** IS THE GCF OF 20 AND 8.

**32** and **14**  
**2** IS THE GCF OF 32 AND 14.

**28** and **42**  
**14** IS THE GCF OF 28 AND 42.

**44** and **66**  
**22** IS THE GCF OF 44 AND 66.

**54** and **27**  
**27** IS THE GCF OF 54 AND 27.