

# Cosmic Factor Quest: Adventures Across the Galaxy

Math

Grade 4

Space Theme

Help our Space explorers solve factor puzzles on their intergalactic adventures!

NAME \_\_\_\_\_

DATE \_\_\_\_\_

SCORE \_\_\_\_\_ / 8

1

Captain Stella is arranging moon rocks in equal rows for her spacecraft museum. She has 12 moon rocks and wants to make rectangular displays with no rocks left over. How many different rectangular arrangements can she make? (List all the factor pairs)

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2

Zorp the Martian is packing alien cookies for a space party. He has 18 cookies and wants to divide them equally among his alien friends with none left over. What are all the possible numbers of friends he could invite?

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3

Astronaut Luna is building a star garden on Planet Glow. She plants flowers in a rectangle that is 24 square units. What are all the possible dimensions (length  $\times$  width) of her garden?

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4

Space pirate Pete found 15 golden asteroid nuggets. He wants to share them equally among his crew with nothing left over. List all the possible crew sizes he could have (including himself).

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5

Engineer Nova is organizing spacesuits in her space station storage. She has 20 spacesuits and wants to arrange them in equal stacks with no leftovers. How many different stack arrangements can she create? (Count all factor pairs)

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6

Young explorer Cosmo collected 16 glowing space crystals during his mission. He wants to make identical gift bags with the same number of crystals in each, using all crystals with none left over. What are all the possible numbers of gift bags he could make?

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7

Commander Rex is arranging training pods on Space Station Alpha in a perfect rectangle. He needs exactly 30 pods with no empty spaces. What are all the possible rectangular formations?

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8

Alien scientist Qix is dividing 14 vials of glowing space serum equally among the laboratory stations, with nothing left over. What are all the possible numbers of laboratory stations that could receive the serum?

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# Answer Key

Math

Grade 4

For Parents and Teachers

1

Captain Stella is arranging moon rocks in equal rows for her spacecraft museum. She has 12 moon rocks and wants to make rectangular displays with no rocks left over. How many different rectangular arrangements can she make? (List all the factor pairs)

**ANSWER**

**6 arrangements:  $1 \times 12$ ,  $2 \times 6$ ,  $3 \times 4$ ,  $4 \times 3$ ,  $6 \times 2$ ,  $12 \times 1$**

2

Zorp the Martian is packing alien cookies for a space party. He has 18 cookies and wants to divide them equally among his alien friends with none left over. What are all the possible numbers of friends he could invite?

**ANSWER**

**1, 2, 3, 6, 9, or 18 friends**

3

Astronaut Luna is building a star garden on Planet Glow. She plants flowers in a rectangle that is 24 square units. What are all the possible dimensions (length  $\times$  width) of her garden?

**ANSWER**

**$1 \times 24$ ,  $2 \times 12$ ,  $3 \times 8$ ,  $4 \times 6$ ,  $6 \times 4$ ,  $8 \times 3$ ,  $12 \times 2$ ,  $24 \times 1$**

4

Space pirate Pete found 15 golden asteroid nuggets. He wants to share them equally among his crew with nothing left over. List all the possible crew sizes he could have (including himself).

**ANSWER**

**1, 3, 5, or 15 crew members**

5

Engineer Nova is organizing spacesuits in her space station storage. She has 20 spacesuits and wants to arrange them in equal stacks with no leftovers. How many different stack arrangements can she create? (Count all factor pairs)

**ANSWER**

**6 arrangements:  $1 \times 20$ ,  $2 \times 10$ ,  $4 \times 5$ ,  $5 \times 4$ ,  $10 \times 2$ ,  $20 \times 1$**

6

Young explorer Cosmo collected 16 glowing space crystals during his mission. He wants to make identical gift bags with the same number of crystals in each, using all crystals with none left over. What are all the possible numbers of gift bags he could make?

**ANSWER**

**1, 2, 4, 8, or 16 gift bags**

7

Commander Rex is arranging training pods on Space Station Alpha in a perfect rectangle. He needs exactly 30 pods with no empty spaces. What are all the possible rectangular formations?

**ANSWER**

**1×30, 2×15, 3×10, 5×6, 6×5, 10×3,  
15×2, 30×1**

8

Alien scientist Qix is dividing 14 vials of glowing space serum equally among the laboratory stations, with nothing left over. What are all the possible numbers of laboratory stations that could receive the serum?

**ANSWER**

**1, 2, 7, or 14 laboratory stations**