

PLEASE SHOW WORK! TWO FATHOMS DEEP IS 12 FEET DEEP. HOW DEEP IS 10 FATHOMS? GROUP OF ANSWER CHOICES 70 FEET 60

PLEASE SHOW WORK! TWO FATHOMS DEEP IS 12 FEET DEEP. HOW DEEP IS 10 FATHOMS? GROUP OF ANSWER CHOICES 70 FEET 60 IS A QUESTION THAT OFTEN APPEARS IN EDUCATIONAL SETTINGS, ESPECIALLY IN MATH AND MEASUREMENT LESSONS. THIS PROBLEM EMPHASIZES THE IMPORTANCE OF UNDERSTANDING UNITS OF MEASUREMENT, SPECIFICALLY FATHOMS AND FEET, AND HOW TO CONVERT BETWEEN THEM. WHETHER YOU'RE A STUDENT WORKING ON YOUR HOMEWORK, A TEACHER DESIGNING A LESSON PLAN, OR SOMEONE INTERESTED IN MARITIME MEASUREMENTS, GRASPING THESE CONVERSIONS IS ESSENTIAL. THIS ARTICLE WILL EXPLORE THE CONCEPT OF FATHOMS, DEMONSTRATE HOW TO CONVERT FATHOMS TO FEET, AND WORK THROUGH THE PROBLEM STEP-BY-STEP TO DETERMINE THE DEPTH WHEN GIVEN IN FATHOMS.

UNDERSTANDING FATHOMS AND FEET

WHAT IS A FATHOM?

A FATHOM IS A UNIT OF LENGTH TRADITIONALLY USED IN MARITIME CONTEXTS TO MEASURE THE DEPTH OF WATER. IT ORIGINATES FROM OLD NAUTICAL PRACTICES WHERE A FATHOM WAS BASED ON THE DISTANCE BETWEEN A PERSON'S OUTSTRETCHED ARMS. TODAY, IT IS STANDARDIZED FOR CONSISTENCY.

STANDARD CONVERSION: FATHOMS TO FEET

THE KEY TO SOLVING MEASUREMENT PROBLEMS INVOLVING FATHOMS AND FEET IS KNOWING THE CONVERSION FACTOR.

- 1 FATHOM = 6 FEET

THIS CONVERSION FACTOR IS UNIVERSALLY ACCEPTED IN NAUTICAL AND MEASUREMENT COMMUNITIES. KNOWING THIS ALLOWS US TO EASILY SWITCH BETWEEN THE TWO UNITS.

CONVERTING FATHOMS TO FEET

STEP-BY-STEP CONVERSION PROCESS

TO CONVERT FATHOMS TO FEET, FOLLOW THESE STEPS:

1. IDENTIFY THE NUMBER OF FATHOMS.
2. MULTIPLY BY 6 (SINCE 1 FATHOM = 6 FEET).
3. CALCULATE THE TOTAL FEET.

FOR EXAMPLE, IF THE DEPTH IS 2 FATHOMS:

- 2 FATHOMS $\times$ 6 FEET/FATHOM = 12 FEET

THIS SIMPLE MULTIPLICATION IS THE FOUNDATION FOR SOLVING MORE COMPLEX PROBLEMS INVOLVING FATHOMS.

APPLYING THE CONVERSION TO THE GIVEN PROBLEM

RESTATING THE QUESTION

THE PROBLEM STATES:

- "TWO FATHOMS DEEP IS 12 FEET DEEP. HOW DEEP IS 10 FATHOMS?"

ADDITIONALLY, THE GROUP OF ANSWER CHOICES GIVEN ARE:

- 70 FEET
- 60 FEET

LET'S ANALYZE THIS STEP-BY-STEP.

STEP 1: CONFIRM THE CONVERSION FACTOR

FROM THE INITIAL STATEMENT:

- 2 FATHOMS = 12 FEET

DIVIDING BOTH SIDES BY 2:

- 1 FATHOM = 6 FEET

THIS CONFIRMS OUR EARLIER UNDERSTANDING THAT 1 FATHOM EQUALS 6 FEET.

STEP 2: CALCULATE THE DEPTH OF 10 FATHOMS

USING THE CONVERSION FACTOR:

- $10 \text{ FATHOMS} \times 6 \text{ FEET/FATHOM} = 60 \text{ FEET}$

So, 10 FATHOMS EQUALS 60 FEET.

STEP 3: MATCH WITH THE GIVEN CHOICES

THE OPTIONS PROVIDED ARE 70 FEET AND 60 FEET. BASED ON OUR CALCULATIONS:

- THE CORRECT ANSWER IS 60 FEET.

WHY UNDERSTANDING UNITS AND CONVERSIONS IS IMPORTANT

REAL-WORLD APPLICATIONS

MEASUREMENT CONVERSIONS ARE NOT JUST ACADEMIC EXERCISES; THEY HAVE PRACTICAL APPLICATIONS IN VARIOUS FIELDS, INCLUDING:

- MARITIME NAVIGATION: KNOWING WATER DEPTH IS CRUCIAL FOR SAFE SAILING.
- ENGINEERING: PRECISE MEASUREMENTS ARE NECESSARY FOR CONSTRUCTION AND DESIGN.
- SCIENCE: ACCURATE DATA COLLECTION DEPENDS ON CORRECT UNIT CONVERSIONS.
- EDUCATION: DEVELOPING PROBLEM-SOLVING SKILLS AND UNDERSTANDING MEASUREMENT SYSTEMS.

COMMON MISTAKES TO AVOID

WHEN WORKING WITH CONVERSIONS, BE CAUTIOUS OF:

- ASSUMING THE WRONG CONVERSION FACTOR.
- FORGETTING TO MULTIPLY OR DIVIDE AS NEEDED.
- MIXING UNITS WITHOUT PROPER CONVERSION.
- OVERLOOKING THE CONTEXT OF THE MEASUREMENT.

ENSURING CLARITY AND ACCURACY IN CONVERSIONS HELPS PREVENT ERRORS IN CALCULATIONS AND REAL-WORLD APPLICATIONS.

ADDITIONAL PRACTICE PROBLEMS

TO REINFORCE YOUR UNDERSTANDING, TRY THESE EXERCISES:

1. CONVERT 5 FATHOMS TO FEET.
2. IF A SHIP IS IN WATER 36 FEET DEEP, HOW MANY FATHOMS IS THAT?
3. WHAT IS THE DEPTH IN FATHOMS OF A WATER BODY THAT IS 84 FEET DEEP?

ANSWERS:

1. $5 \text{ FATHOMS} \times 6 = 30 \text{ FEET}$
2. $36 \text{ FEET} \div 6 = 6 \text{ FATHOMS}$
3. $84 \text{ FEET} \div 6 = 14 \text{ FATHOMS}$

CONCLUSION

UNDERSTANDING HOW TO CONVERT FATHOMS TO FEET IS AN ESSENTIAL SKILL, ESPECIALLY IN MARITIME CONTEXTS. THE KEY IS KNOWING THAT 1 FATHOM EQUALS 6 FEET. APPLYING THIS CONVERSION FACTOR MAKES IT STRAIGHTFORWARD TO SOLVE PROBLEMS LIKE "HOW DEEP IS 10 FATHOMS?" AND PICK THE CORRECT ANSWER FROM MULTIPLE CHOICES. REMEMBER, ALWAYS VERIFY YOUR CONVERSION FACTORS AND PERFORM CALCULATIONS CAREFULLY TO ENSURE ACCURACY. MASTERING THESE CONVERSIONS ENHANCES YOUR MEASUREMENT SKILLS AND PREPARES YOU FOR REAL-WORLD SCENARIOS INVOLVING DEPTH MEASUREMENTS, NAVIGATION, AND ENGINEERING.

SUMMARY:

- 1 FATHOM = 6 FEET
- 10 FATHOMS = $10 \times 6 = 60$ FEET
- CORRECT ANSWER: 60 FEET

BY UNDERSTANDING THE FUNDAMENTAL CONVERSION BETWEEN FATHOMS AND FEET, YOU CAN CONFIDENTLY APPROACH SIMILAR MEASUREMENT QUESTIONS AND APPLY THESE PRINCIPLES IN VARIOUS PRACTICAL AND EDUCATIONAL CONTEXTS.

FREQUENTLY ASKED QUESTIONS

IF TWO FATHOMS EQUAL 12 FEET, HOW MANY FEET ARE IN ONE FATHOM?

ONE FATHOM EQUALS 6 FEET BECAUSE 12 FEET DIVIDED BY 2 EQUALS 6 FEET.

HOW DEEP IS 10 FATHOMS IN FEET?

10 FATHOMS IS 60 FEET DEEP BECAUSE 10 TIMES 6 FEET PER FATHOM EQUALS 60 FEET.

WHAT IS THE TOTAL DEPTH IN FEET FOR 2 FATHOMS?

2 FATHOMS IS 12 FEET DEEP, AS GIVEN IN THE PROBLEM.

IF 2 FATHOMS IS 12 FEET, WHAT IS THE CONVERSION FACTOR FROM FATHOMS TO FEET?

THE CONVERSION FACTOR IS 6 FEET PER FATHOM BECAUSE 12 FEET DIVIDED BY 2 FATHOMS EQUALS 6 FEET PER FATHOM.

USING THE CONVERSION, HOW MANY FEET ARE IN 10 FATHOMS?

THERE ARE 60 FEET IN 10 FATHOMS BECAUSE 10 TIMES 6 EQUALS 60.

WHAT IS THE CORRECT ANSWER CHOICE FOR THE DEPTH OF 10 FATHOMS?

THE CORRECT ANSWER IS 60 FEET.

WHICH OF THE ANSWER CHOICES CORRECTLY REPRESENTS 10 FATHOMS IN FEET?

60 FEET IS CORRECT, AS 10 FATHOMS EQUALS 60 FEET.

WHY IS 70 FEET NOT A CORRECT ANSWER FOR 10 FATHOMS?

BECAUSE EACH FATHOM IS 6 FEET, SO 10 FATHOMS ARE 60 FEET, NOT 70.

IS 70 FEET A PLAUSIBLE DEPTH FOR 10 FATHOMS?

NO, BECAUSE 10 FATHOMS ARE ONLY 60 FEET BASED ON THE CONVERSION, SO 70 FEET IS TOO DEEP.

WHAT IS THE SIGNIFICANCE OF UNDERSTANDING THE RELATIONSHIP BETWEEN FATHOMS AND FEET?

IT HELPS ACCURATELY CONVERT DEPTHS MEASURED IN FATHOMS TO FEET, WHICH IS USEFUL IN NAVIGATION AND MEASURING UNDERWATER DEPTHS.

ADDITIONAL RESOURCES

PLEASE SHOW WORK! TWO FATHOMS DEEP IS 12 FEET DEEP. HOW DEEP IS 10 FATHOMS?

UNDERSTANDING MEASUREMENTS OFTEN REQUIRES CAREFUL CONVERSION AND CLEAR REASONING, ESPECIALLY WHEN DEALING WITH UNITS THAT AREN'T USED DAILY. IN THIS ARTICLE, WE WILL EXPLORE THE PROBLEM: TWO FATHOMS DEEP IS 12 FEET DEEP. HOW DEEP IS 10 FATHOMS? BY WALKING THROUGH THE STEPS SYSTEMATICALLY, YOU'LL GAIN A BETTER GRASP OF UNIT CONVERSIONS AND PROBLEM-SOLVING STRATEGIES. WHETHER YOU'RE A STUDENT TACKLING A MATH PROBLEM OR A CURIOUS MIND INTERESTED IN MEASUREMENT CONVERSIONS, THIS GUIDE WILL HELP YOU SEE THE PROCESS CLEARLY.

WHAT IS A FATHOM? UNDERSTANDING THE MEASUREMENT

BEFORE DIVING INTO THE PROBLEM, IT'S ESSENTIAL TO UNDERSTAND WHAT A FATHOM IS AND HOW IT RELATES TO FEET.

DEFINITION OF A FATHOM

- A FATHOM IS A UNIT OF LENGTH PRIMARILY USED IN NAUTICAL CONTEXTS TO MEASURE THE DEPTH OF WATER.
- TRADITIONALLY, ONE FATHOM EQUALS SIX FEET.

THIS RELATIONSHIP SIMPLIFIES CONVERSIONS BETWEEN FATHOMS AND FEET, MAKING IT EASIER TO SOLVE RELATED PROBLEMS.

WHY USE FATHOMS?

- FATHOMS ARE ESPECIALLY USEFUL IN MARINE AND NAUTICAL ACTIVITIES BECAUSE THEY PROVIDE A PRACTICAL WAY TO MEASURE WATER DEPTHS.
- KNOWING THE CONVERSION FACTOR HELPS IN TRANSLATING MEASUREMENTS FOR VARIOUS APPLICATIONS, FROM NAVIGATION TO SAFETY PROTOCOLS.

BREAKING DOWN THE PROBLEM

LET'S RESTATE THE PROBLEM CLEARLY:

> TWO FATHOMS DEEP IS 12 FEET DEEP. HOW DEEP IS 10 FATHOMS?

AT FIRST GLANCE, THIS MIGHT SEEM STRAIGHTFORWARD, BUT IT'S CRUCIAL TO UNDERSTAND WHAT THE PROBLEM IS ASKING AND WHAT INFORMATION IS GIVEN.

KEY INFORMATION

- 2 FATHOMS CORRESPONDS TO 12 FEET.
- THE QUESTION ASKS: HOW DEEP IS 10 FATHOMS?

STEP-BY-STEP SOLUTION APPROACH

STEP 1: FIND THE CONVERSION FACTOR FROM FATHOMS TO FEET.

SINCE 2 FATHOMS EQUAL 12 FEET, WE CAN SET UP A PROPORTION OR A SIMPLE CALCULATION:

CONVERSION FACTOR:

- 2 FATHOMS = 12 FEET
- THEREFORE, 1 FATHOM = $12 \text{ FEET} \div 2 = 6 \text{ FEET}$

THIS CONFIRMS THE STANDARD CONVERSION: 1 FATHOM = 6 FEET.

STEP 2: USE THE CONVERSION FACTOR TO FIND THE DEPTH IN FEET FOR 10 FATHOMS.

- $10 \text{ FATHOMS} \times 6 \text{ FEET/FATHOM} = 60 \text{ FEET}$

Thus, 10 fathoms = 60 feet.

EXPLANATION OF THE SOLUTION:

The key step was recognizing the relationship between fathoms and feet. The initial information provided (2 fathoms = 12 feet) is consistent with the standard conversion rate and confirms that 1 fathom equals 6 feet. Once the conversion factor is established, the rest is straightforward multiplication.

CONFIRMING THE RESULT WITH LOGICAL CHECKS

It's always good practice to verify your answer:

- If 2 fathoms are 12 feet, then doubling that (to 4 fathoms) should be 24 feet, which aligns with the conversion rate.
- For 10 fathoms:
 $10 \times 6 = 60$ feet, which makes sense given the linear relationship.

This consistency check confirms the validity of our solution.

MULTIPLE CHOICE ANSWER

Given the options:

- 70 feet
- 60 feet

The correct answer is 60 feet.

ADDITIONAL INSIGHTS AND TIPS FOR CONVERSION PROBLEMS

1. ALWAYS IDENTIFY THE UNITS INVOLVED.

Understanding what units are given and what the question asks for is crucial.

2. LOOK FOR KNOWN CONVERSION FACTORS.

In this case, the standard conversion factor was 1 fathom = 6 feet. Sometimes, you may need to derive it from given data, as we did initially.

3. SET UP PROPORTIONS OR USE DIRECT MULTIPLICATION.

Once the conversion rate is established, apply it directly to the unknown measurement.

4. VERIFY YOUR ANSWER WITH A LOGICAL CHECK.

Always double-check by reasoning about the numbers to ensure they make sense.

PRACTICAL APPLICATIONS OF CONVERSION SKILLS

Mastering measurement conversions like this is invaluable beyond classroom exercises. Here are some real-world scenarios:

- NAUTICAL NAVIGATION: Calculating water depths for safe passage.
- CONSTRUCTION: Converting measurements from different units to ensure precision.

- EDUCATION: BUILDING A SOLID FOUNDATION FOR ADVANCED MATH AND SCIENCE TOPICS.

SUMMARY

IN SUMMARY, THE PROBLEM "TWO FATHOMS DEEP IS 12 FEET DEEP. HOW DEEP IS 10 FATHOMS?" HINGES ON UNDERSTANDING THE CONVERSION FACTOR BETWEEN FATHOMS AND FEET. RECOGNIZING THAT 1 FATHOM = 6 FEET ALLOWS FOR STRAIGHTFORWARD CALCULATION:

$$10 \text{ FATHOMS} = 10 \times 6 = 60 \text{ FEET}$$

THIS ANSWER MATCHES ONE OF THE OPTIONS PROVIDED, CONFIRMING THE CORRECTNESS OF OUR REASONING.

FINAL THOUGHTS

WHEN APPROACHING MEASUREMENT CONVERSION PROBLEMS, ALWAYS START BY IDENTIFYING THE RELATIONSHIP BETWEEN UNITS. CONFIRM THIS RELATIONSHIP WITH GIVEN DATA, THEN APPLY IT SYSTEMATICALLY. PRACTICE MAKES PERFECT—SO KEEP EXPLORING DIFFERENT UNITS AND CONVERSIONS TO BUILD YOUR CONFIDENCE AND ACCURACY.

REMEMBER: SHOW YOUR WORK! CLEAR, STEP-BY-STEP REASONING NOT ONLY HELPS YOU ARRIVE AT THE CORRECT ANSWER BUT ALSO REINFORCES YOUR UNDERSTANDING OF THE CONCEPTS INVOLVED.

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