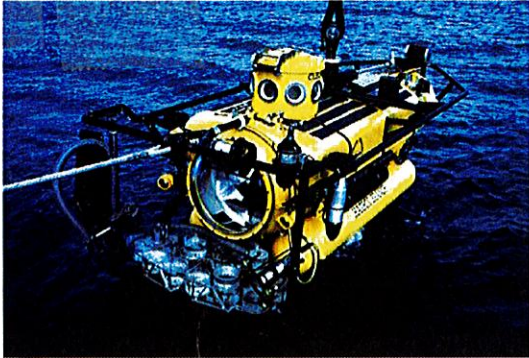




A Club for Explorers

by W.M. Akers



What's at the bottom of the ocean? People have wondered that for a long time. To find out what lay far beneath the waves, scientists developed diving equipment, like flippers, goggles and scuba tanks. They built scientific submarines to go even farther underwater, where they found fish and plant life that had never been exposed to the sunlight. But no matter how advanced their technology, no one could go all the way to the bottom of the deepest part of the sea-the Mariana Trench-which is in the middle of the Pacific Ocean.

At 36,000 feet below sea level, the deepest part of the trench, known as the Challenger Deep, is deeper than Everest is tall. In 1960, two men attempted to get to the bottom of it. In a cramped submarine called the *Trieste*, Jacques Piccard and Don Walsh descended slowly to the bottom. They made the trip safely. When they landed on the ocean's floor-farther down than anyone had ever gone-they kicked up so much dirt, they couldn't see what was out there.

It was fifty years before anyone attempted to make the trip again. In 2012, film director James Cameron-best known for movies like *Avatar* and *Titanic*-became the first man to make a solo dive to the bottom of Challenger Deep. It took 90 minutes for his tiny, torpedo-shaped submarine to reach the bottom. Like any good filmmaker, he made sure to bring a camera. In fact, he brought a lot of them-3D cameras that captured the bottom of the sea in detail that Piccard and Walsh could never have dreamed of. The footage, said the expedition's chief scientist Doug Bartlett, is "so, so beautiful."

"It's unlike anything that you'll have seen from other subs or other remotely operated vehicles," he said.

Besides the cameras, Cameron's submarine carried a flag: a red, white and blue banner with an "E" and "C" on it. It's the official emblem of the Explorers Club, an international organization dedicated to promoting exploration worldwide. For over a century, they have helped lead the charge into the unknown. And no matter how deep mankind goes, they will never be finished.

What Does the Club Do?

Founded in 1904, the Explorers Club was started by a group of men who had previously belonged to the Arctic Club of America. In those days, polar exploration was the cutting edge of science, but the men who had conquered the North and South Pole wanted to broaden their horizons. They welcomed jungle explorers, mountain climbers, and the deep sea divers who paved the way for Piccard, Walsh and Cameron.

"It was meant to bring together explorers, to promote exploration and to promote knowledge of it to

the public," said Mary French, the archivist at the Explorers Club, who spoke to us recently by phone. French is responsible for documenting the history of the club, whose membership rolls have included some of the greatest explorers of all time. Those explorers include Roald Amundsen, who led the expedition that first reached the South Pole, and Neil Armstrong, the first man to walk on the moon.

Whenever its members go on an expedition, French explained, they bring along an Explorers Club flag. Many of these flags have a long history of their own. The one that Cameron took to the bottom of Challenger Deep, for example, had previously been to the top of Mount Everest—meaning that it had been both to the top of the world and the bottom.

"Among our retired flags is one that in 2007 was taken on an expedition to the true North Pole," said French. "Team members went under the ice in a submarine to find the magnetic North Pole, not over the ice, because that isn't true north. They went on a deep-sea dive under the ice."

A Famous Trip across the Water

Perhaps the most famous Explorers Club expedition was made in 1947, by a Norwegian adventurer named Thor Heyerdahl. Heyerdahl had a theory that ancient South Americans could have traveled across the Pacific Ocean and settled in islands in Polynesia—a journey of over 4,000 miles, across some of the most dangerous water on Earth. To prove his theory, Heyerdahl used centuries-old technology to build an open-air raft called *Kon-Tiki*. In this primitive raft, six Scandinavian explorers set out on the journey of a lifetime.

"It's a very classic adventure story," said French. "A story that's kind of timeless."

For three months, the little boat drifted westward, carried by the tides and the faint Pacific winds. They ate coconuts, sweet potatoes and fish they caught themselves. As they endured the elements, people back home followed their every movement, hoping that the brave Scandinavians would arrive safely.

"That was a very popular expedition at the time," said French. "It was kind of like a reality show. It was in the newspaper every day."

When they finally made it across the sea—passing not too far from the Mariana Trench—they were greeted by a tribe of native Polynesians, who threw them a big party. For their daring, Heyerdahl and his crew became some of the most famous people in the world, and the Explorers Club flag they took with them became one of the most famous in French's collection.

Can You Be an Explorer?

French said that if she could choose any Explorers Club expedition to have gone on, she would have picked *Kon-Tiki*. She called it "a classic example" of the explorer's mentality. What does it take to be an explorer?

"The rebelliousness that's required to go against people who are saying that it's not possible," she said. "Questioning authority, and not just authority, but standard knowledge. Having your own ideas,

and exploring those ideas for your own knowledge, and not just to impress other people."

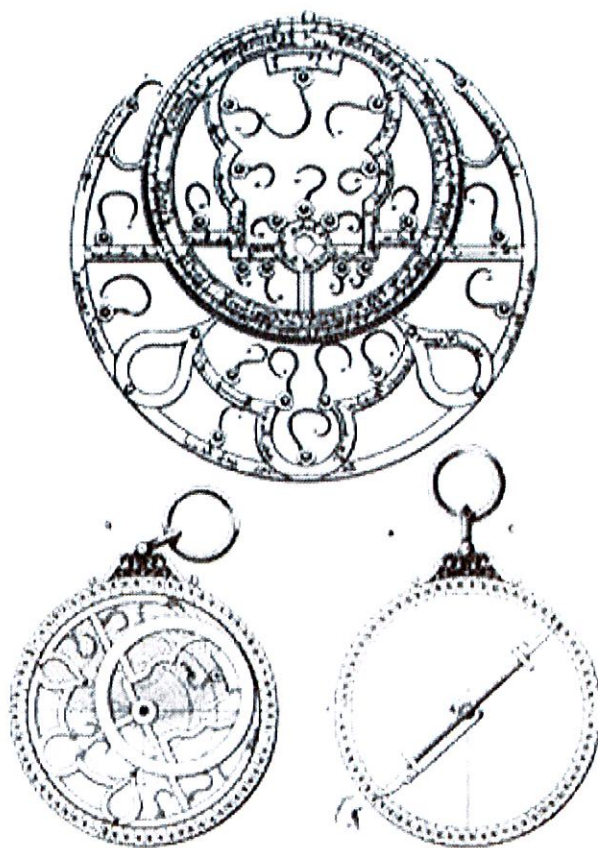
At a recent Explorers Club dinner, James Cameron was given an award for his trip to Challenger Deep. French said that he called exploration "curiosity in action."

"It could be something as humble as going out and hiking a trail," she said. "Or it could be much bigger-like becoming an astronaut."

As long as you're "seeking the answers to questions," she concluded, you can be an explorer.

The Age of Exploration

by ReadWorks



Arabisches Astrolabium, 1308.
Ruth Sponck

For thousands of years, people have been fascinated with world exploration and discovering new places and cultures. Historically, one of the most efficient ways to navigate the world was traveling by sea. From the ancient Greeks to medieval Spanish kings, exploration was a major goal for governments because it offered the prospect of new commercial operations and trade routes. For example, Spanish ships could sail to China and bring back Chinese spices and silks (which were unavailable on mainland Europe) to sell to Spanish markets. Early explorers relied on a navigational system called "dead reckoning," or calculating their position based on previous positions (like landmasses) and their estimated velocity and drift to make sure they did not veer off course; however, this method was an inexact science. As exploration became more important for Europe's economic interests, advanced devices that made exploration easier and more exact were developed.

The "age of exploration" marked a new frontier for sea navigation. This epoch began in the 15th century when Portugal and Spain started to expand their commercial interests and trade routes across the oceans, resulting in the exchange of goods and sometimes even traditions. Sailors used new technologies to navigate across the world, including a device called the quadrant, a fan-shaped

magnetic object that measured the altitude of stars, the moon, and the sun in order to determine the latitude of a ship. Another device was the compass, which used Earth's magnetic poles to point navigators north, south, east, or west. Time-keeping devices, like hourglasses, were important in calculating how far and how fast a ship had sailed. Early navigators also used maps, although these were not always accurate and were often written during the course of the exploration. These maps were then improved upon with new explorations.

It was an exciting time to be an explorer. Governments would pay men to navigate ships across the open seas and discover new lands. One of the most famous explorers was Christopher Columbus, the Italian navigator who set out to find a more efficient route to India and instead stumbled upon what is now known as Central America and South America. At the time of his sailing, Columbus only had a few navigational instruments available to him, including the compass, an astrolabe (a device that predicted the location of stars and helped explorers determine their latitudinal or vertical position on a globe), a quadrant, and incomplete maps. Columbus's incomplete knowledge of world geography and the imprecise navigational devices he brought with him caused him to inadvertently discover the Americas and all the rich natural resources available there.

You can imagine the difficulties explorers had with the available technologies during Columbus's time when you think about Columbus's experience. He meant to travel from Spain to India, which we now know would have required him to sail first west, then south, then north. Instead, Columbus traveled west and believed he had reached the farthest place from Spain, the complete opposite side of the world: India. On the one hand, the tools' inaccuracies made exploration by sea inconsistent and unpredictable; on the other, explorers at the time had limited knowledge of the world's geography, which also hindered exploration of unknown territory. These issues, along with the financial risks involved, made it difficult for some governments and kings to agree to fund explorations during which their navigators could become irretrievably lost.

As time went on, more European countries began to explore the world. In the late 17th century, Great Britain joined the navigational tool race, developing modern tools such as the sextant and the chronometer, which replaced tools used by the earliest explorers. The sextant was used to measure the angles between the horizon and celestial objects in order to determine the ship's latitude. Longitude was nearly impossible to calculate until the invention of the chronometer, an accurate timekeeping device. These modern inventions arrived after much of the world had already been explored, but allowed ship captains to cut down the length of time they were at sea, and improved accuracy in route planning.

Name: _____ Date: _____

Use the article "The Age of Exploration" to answer questions 1 to 2

1. What are two issues that made it difficult for explorers during the Columbus's time to explore unknown territory by sea?
2. The "age of exploration" began in the 15th century when Portugal and Spain started to expand their commercial interests and trade routes across the oceans. What are two things that may have motivated explorers to navigate the world by sea during this period? Use information from the text to support your answer.

Use the article "A Club for Explorers" to answer questions 3 to 4

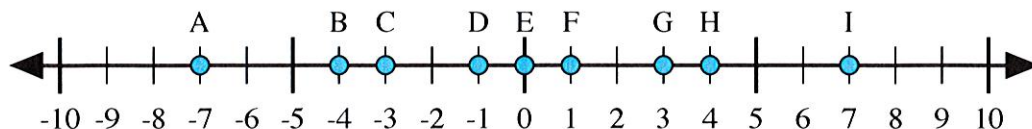
3. According to Mary French, what was the Explorers Club meant to do when it was founded?
4. What motivates the members of the Explorers Club to go on their expeditions? Use evidence from the text to support your answer.

Use the articles "A Club for Explorers" and "The Age of Exploration" to answer questions 5 to 7.

5. Compare the motivations of modern explorers with those of the explorers from the "age of exploration". Use information from both texts to support your answer.
6. Contrast the motivations of modern explorers with those of the explorers from the "age of exploration". Use information from both texts to support your answer.
7. What are some characteristics that are important in a explorer? Provide at least three characteristics, using evidence from both texts to support your answer.



Determine which letter in the numberline best represents the answer to each problem.



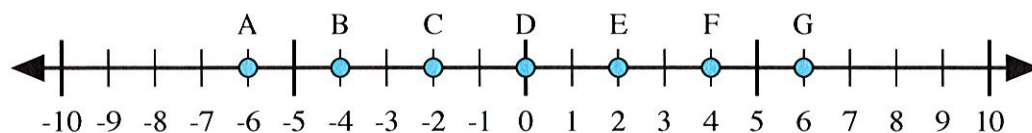
1) $4 + (-3) =$ |

2) $4 + 3 =$

3) $(-4) + (-3) =$

4) $3 + (-4) =$

5) $(-3) + 4 =$



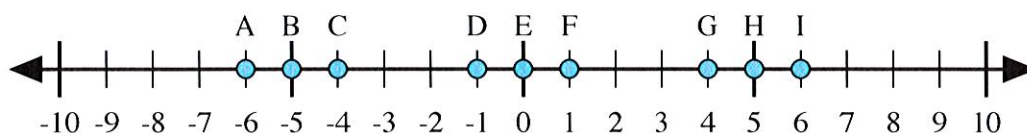
6) $(-4) + 2 =$

7) $4 + (-2) =$

8) $2 + (-4) =$

9) $(-2) + (-4) =$

10) $(-2) + 4 =$



11) $(-1) + 5 =$

12) $5 + 1 =$

13) $5 + (-1) =$

14) $1 + (-5) =$

15) $(-5) + 1 =$

Answers1. F

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

14. _____

15. _____



Find the least common multiple of both numbers.

Answers

To find the least common multiple one strategy is to list the multiples of the numbers.

4	<u>4</u>	<u>8</u>	<u>12</u>	<u>16</u>	<u>20</u>	<u>24</u>	<u>28</u>	<u>32</u>	<u>36</u>	<u>40</u>	<u>44</u>	<u>48</u>
6	<u>6</u>	<u>12</u>	<u>18</u>	<u>24</u>	<u>30</u>	<u>36</u>	<u>42</u>	<u>48</u>	<u>54</u>	<u>60</u>	<u>66</u>	<u>72</u>

Some of the multiples 4 and 6 have in common are: 12, 24, 36 & 48.
The common multiple that is least is 12.

1. 9
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

- 1)

3	<u>3</u>	<u>6</u>	_____	_____	_____	_____	_____
9	<u>9</u>	<u>18</u>	<u>27</u>	<u>36</u>	_____	_____	_____
- 2)

8	<u>8</u>	<u>16</u>	_____	<u>32</u>	_____	_____	_____
6	<u>6</u>	<u>12</u>	_____	<u>24</u>	_____	_____	_____
- 3)

8	_____	_____	_____	<u>32</u>	_____	_____	_____
5	_____	_____	_____	<u>20</u>	_____	_____	_____
- 4)

9	_____	_____	_____	_____	_____	_____	_____
8	_____	_____	_____	_____	_____	_____	_____
- 5)

12	_____	_____	_____	_____	_____	_____	_____
10	_____	_____	_____	_____	_____	_____	_____
- 6)

3	_____	_____	_____	_____
4	_____	_____	_____	_____
- 7)

4	_____	_____	_____	_____	_____
6	_____	_____	_____	_____	_____
- 8)

11	<u>11</u>	<u>22</u>	_____	_____	_____	_____	_____
5	<u>5</u>	<u>10</u>	_____	_____	_____	_____	_____
- 9)

4	_____	_____	_____	_____	_____	_____	_____
9	_____	_____	_____	_____	_____	_____	_____
- 10)

11	_____	_____	_____	<u>44</u>	_____	_____	_____
7	_____	_____	_____	<u>28</u>	_____	_____	_____