

1. The sum of two positive integers is 9. What is the least possible sum of their reciprocals? Express your answer as a decimal to the nearest hundredth.

1. _____

2. Two integers are relatively prime if they have no common factors other than 1 or -1 . What is the probability that a positive integer less than or equal to 30 is relatively prime to 30? Express your answer as a common fraction.

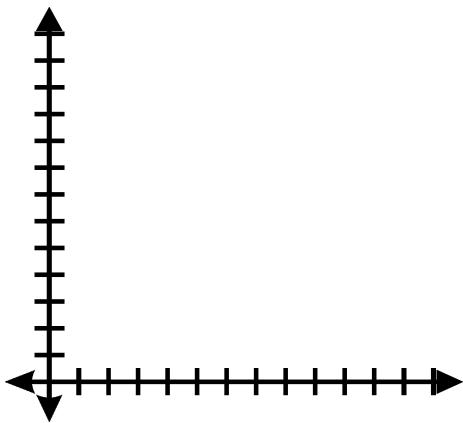
2. _____

3. Positive integers B and C satisfy $B(B - C) = 23$. What is the value of C ?

3. _____

4. A parallelogram has vertices at $(0, 0)$, $(2, 5)$, (m, n) and $(10, 0)$, where m and n are both positive numbers. How many units are in the length of the longest diagonal of the parallelogram?

4. _____

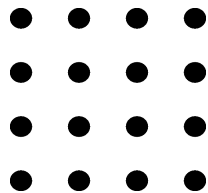


5. In the sequence 16, 80, 48, 64, A, B, C, D, each term beyond the second term is the arithmetic mean (average) of the previous two terms. What is the value of D?

5. _____

6. A 4 by 4 grid of points is shown below. Each point is one unit from its nearest horizontal and vertical neighbors. What is the greatest number of segments that can be drawn, using pairs of these points as endpoints, such that no two segments are the same length?

6. _____



7. Two distinct numbers are selected simultaneously and at random from the set $\{1, 2, 3, 4, 5\}$. What is the probability that their product is an even number? Express your answer as a common fraction.

7. _____

8. According to the data presented in the chart below, find the two companies which have a ratio of their numbers of visitors closest to 2:1. Of these two companies, name the company with the smaller number of visitors.

8. _____

| Web Property | Number of Visitors in January 2001 |
|----------------|------------------------------------|
| America Online | 64.3 million |
| Microsoft | 56.2 million |
| Yahoo! | 55.0 million |
| Lycos | 31.8 million |
| Excite | 28.8 million |
| About | 22.7 million |
| Disney | 21.4 million |
| CNET | 19.3 million |
| Infospace | 19.3 million |
| eBay | 18.8 million |