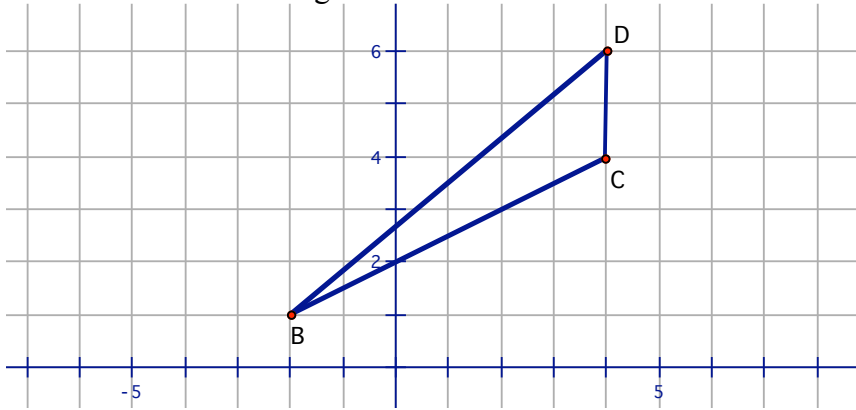


Instructions: Place your final answer on the answer sheet provided. Marks are only awarded for answers. Unless an approximation is asked for in the question, answers should be given in exact form (fraction, square root, etc). Calculators are permitted.

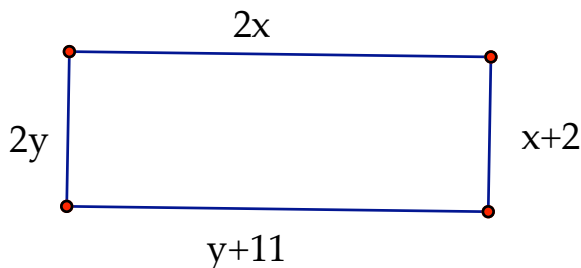
1. Find the area of triangle BCD:



2. A word's value is calculated as follows: Consecutive vowels are worth 10 points each. Consecutive consonants are worth 5 points each. Otherwise, each vowel is worth 6 points and each consonant is worth 2 points. Using this scoring system, find the value of the word PREDICTION.

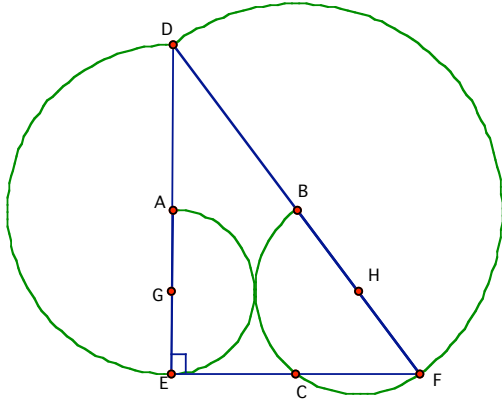
3. In a sequence of numbers, the next number in the sequence is found by adding one to the reciprocal of the previous term. For example, if the previous term had been 4, the next term would be $\frac{1}{4} + 1 = \frac{5}{4}$. Assuming that 4 is the first term of the sequence, find the largest term in the sequence (not including the first term).

4. The figure shown below is a rectangle. Find the area of the rectangle given the side lengths as shown.



5. A company saw their sales increase by 10% during each of the first two years and then decrease by 25% during the third year. At the end of the third year, they had 1089 customers. Find the number of customers they had originally.

6. Find the sum of 500 consecutive integers, the smallest of the integers being -100 .
7. The ratio of boys to girls in Besttown Middle School is 6:5. At the end of the year, 231 boys left the school and the ratio was now 5:6. How many students were at Besttown Middle School at the beginning of the year?
8. A running race begins at point A. It is run around the semi-circles from A to E to D to F to B, where it ends. Find the total distance run, to the nearest metre.



A, B, G, H are centres of the semi-circles drawn. $\triangle DEF$ is right-angled at E. $DE=24$ m, $EF=32$ m.

9. Each time two regular, six-sided dice are rolled, the sum of the dots showing on the dice is calculated. If the sum is divisible by 3, the player is given \$3. If the sum is divisible by 5, she loses \$5. Finally, if the player rolls a total of 2 (double 1's) she loses \$1. If this game is played 1000 times, find the amount she should expect to lose or win.
10. If $(6^{16})(10^{12})(15^{10}) = (2^a)(3^b)(5^c)$ find $a + b + c$.

Answers:

1. 6
2. 56
3. $\frac{9}{5}$
4. 160
5. 1200
6. 74750
7. 1386
8. 151
9. \$0
10. 76