Name:_____ **Math 8 Honours: Ch4 Review: Pythagorean Problems:** Date:_____

1. When given the three sides of a triangle, how do you check if it is a right triangle or not?

2. Which of the following are Pythagorean triples?

(6, 8, 10)	(7, 12, 41)	(8, 15, 17)	(7, 40, 41)	(9, 12, 15)
(6, 8, 10)	(7, 24, 25)	(9, 40, 41)	(11, 60, 61)	(28, 45, 53)
(20, 21, 29)	(15, 17, 34)	(20, 99, 101)	(14, 80, 82)	(24, 45, 51)

3. The area of the square created by the hypotenuse of a right triangle is 74units^2. If the other two sides of the right triangle are integer lengths, then what is the area of the triangle?

4. The height and base of a right triangle are $\sqrt{20}$ and $\sqrt{45}$ respectively. What is the length of the hypotenuse?

5. The height of a right triangle is 3 times the length of the base. If the length of the hypotenuse is $8\sqrt{11}$ then what is the length of the base and height?

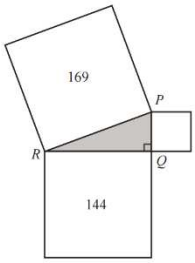
6. An equilateral triangle with side length of 2 units is cut in half to form two congruent right triangles. What is the height of the right triangles?

7. An isosceles right triangle has a height of 4cm. What is the length of the base and hypotenuse of the triangle?

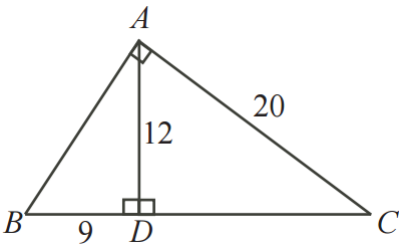
8. The diagonal of a square of "k" units long. What is the area of the square in terms of "k"? Show all your work and steps:

The following questions are contest problems that requires the use of the Pythagorean Theorem. Please show your work and steps when solving these problems. Take the time to write your solution OR sequence the steps required to find your solution:

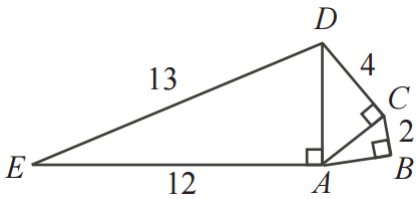
9. What is the area of the little square?



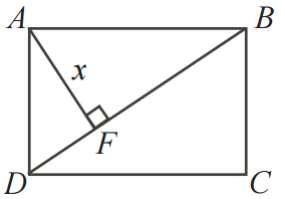
10. What is the perimeter of the triangle?



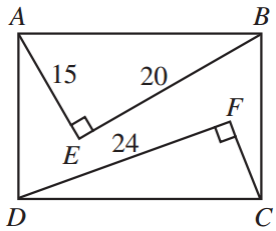
11. In the diagram, ED =13, EA = 12, DC =4, and CB=2. Determine the length of AB.



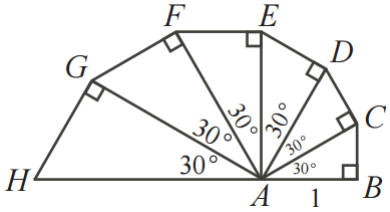
12. If AB=44, and CB=33, then what is the length of "x"?



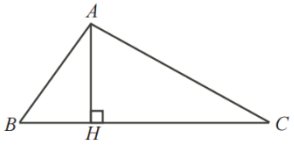
13. What is the length of CF?



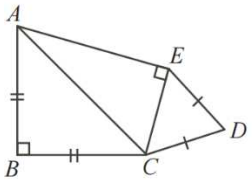
14. What is the length of AH?



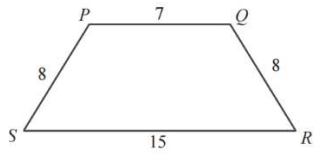
15. In the diagram, AB =10, AH=8, and the area of triangle ABC is 84. What is the perimeter of triangle ABC?



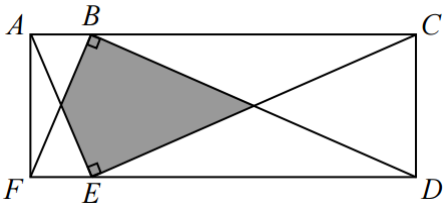
16. Given that AB=BC= $2\sqrt{2}$, $\angle EAB = 75°$, $\angle CDE = 60°$, and DE=CD, what is the perimeter of ABCDE?.



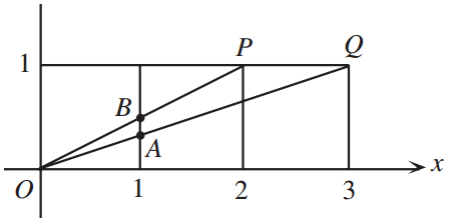
17. Determine the length of PR.



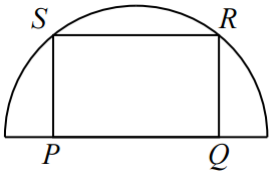
18. In the triangle, AC =200 and CD =50. Triangles ACE and FDB are congruent. What is the area of the shaded region? (Euclid 2015)



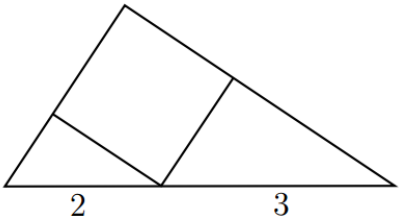
19. What is the length of AB?



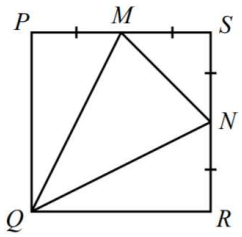
20. If PQ=20 and SP=15, then what is the area of the semi-circle?



21. Given the square in the triangle, what is the area of the square?



22. In square PQRS, "M" is the midpoint of PS and "N" is the midpoint of SR. If the area of triangle SMN is 18, then what is the area of triangle QMN?



23. A tetrahedron (aka: Triangular Pyramid) has edge lengths: AB= 2, AC =3, AD = 4, $BC = \sqrt{13}$, $BD = 2\sqrt{5}$ and CD=5. What is the volume of the tetrahedron ABCD? NOTE: The volume of a pyramid is equal to the area of the "base" multiplied to the height of the pyramid.