Math93.com

TD Pythagore
SAT (Scholastic Assessment Test) and CEMC

Les exercices suivants sont tirés des sujets d'entraînement disponibles sur le site du SAT (link) et des concours du CEMC (link), « *the Center for Education in Mathematics and Computing* » comme Gauss, Pascal ...

— Pour avoir les sujets originaux du SAT : https://www.math93.com/.../sat

Première partie

Racines carrées

Exercice 1. CEMC contest Gauss and Pascal

Question 1 (Pascal 2015)

The value of $\sqrt{16 \times \sqrt{16}}$ is :

a. 2^1 **b.** 2^2 **c.** 2^3 **d.** 2^4 **e.** 2^5

Question 2 (Pascal 2013)

The expression $\left(\sqrt{100}+\sqrt{9}\right)\left(\sqrt{100}-\sqrt{9}\right)$ is equal to :

a. 91 **b.** 19 **c.** 9991 **d.** 9919 **e.** 10 991

Question 3 (Gaus8 2020)

A perfect square is a whole number whose square root is also a whole number. For example, 144 is a perfect square since its square root is 12. How many perfect squares are there between 2 and 20?

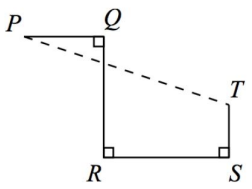
a. 0 **b.** 1 **c.** 2 **d.** 3 **e.** 4

Deuxième partie

Pythagoras of Samos (c. 570 – c. 495 BC)

Question 4 (Pascal 2016)

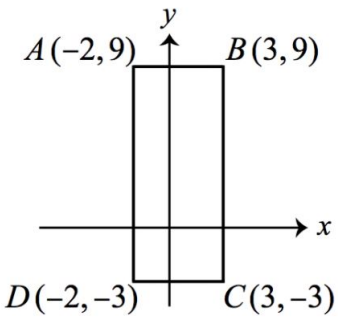
In the diagram, PQ is perpendicular to QR, QR is perpendicular to RS, and RS is perpendicular to ST. If PQ = 4, QR = 8, RS = 8, and ST = 3, then the distance from P to T is



a. 16 **b.** 12 **c.** 17 **d.** 15 **e.** 13

Question 5 (Gaus8 2016)

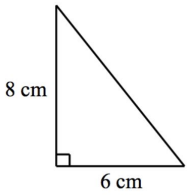
In the diagram, what is the length of BD?



a. 13 **b.** 17 **c.** $\sqrt{205}$ **d.** $\sqrt{160}$ **e.** 15

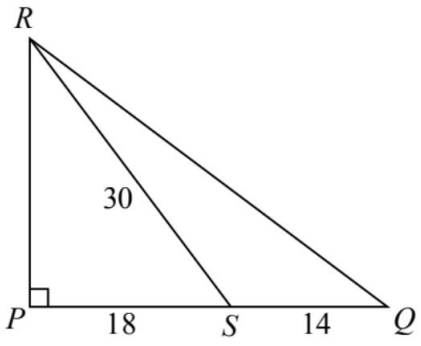
Question 6 (Gaus8 2015)

There is a square whose perimeter is the same as the perimeter of the triangle shown. The area of that square is



a. 12.25 cm^2 **b.** 196 cm^2 **c.** 49 cm^2 **d.** 36 cm^2 **e.** 144 cm^2

Question 7 (Pascal 2014)

In ΔPQR, ∠RPQ = 90° and S is on PQ.
If SQ = 14, SP = 18, and SR = 30, then the area of ΔQRS is :

a. 84 **b.** 168 **c.** 210 **d.** 336 **e.** 384