

Pythagorean Triples

Every primitive Pythagorean triple has the form $(m^2 - n^2, 2mn, m^2 + n^2)$ where m and n are relatively prime integers of opposite parity with $m > n \geq 1$. We list all such triples whose parameters (m, n) are bounded above by **max**.

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In[3]:= max=10;
For [m=2, m<=max, m++,
  For [n=1, n<m, n++,
    If [GCD[m,n]==1 && Mod[m+n,2]==1,
      Print["The pair (m,n)=(",m,",",n,
        ") gives the primitive Pythagorean triple (",m^2-n^2,",",2*m*n,",",m^2+n^2,") ."]]]]
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The pair $(m,n) = (2,1)$ gives the primitive Pythagorean triple $(3,4,5)$.

The pair $(m,n) = (3,2)$ gives the primitive Pythagorean triple $(5,12,13)$.

The pair $(m,n) = (4,1)$ gives the primitive Pythagorean triple $(15,8,17)$.

The pair $(m,n) = (4,3)$ gives the primitive Pythagorean triple $(7,24,25)$.

The pair $(m,n) = (5,2)$ gives the primitive Pythagorean triple $(21,20,29)$.

The pair $(m,n) = (5,4)$ gives the primitive Pythagorean triple $(9,40,41)$.

The pair $(m,n) = (6,1)$ gives the primitive Pythagorean triple $(35,12,37)$.

The pair $(m,n) = (6,5)$ gives the primitive Pythagorean triple $(11,60,61)$.

The pair $(m,n) = (7,2)$ gives the primitive Pythagorean triple $(45,28,53)$.

The pair $(m,n) = (7,4)$ gives the primitive Pythagorean triple $(33,56,65)$.

The pair $(m,n) = (7,6)$ gives the primitive Pythagorean triple $(13,84,85)$.

The pair $(m,n) = (8,1)$ gives the primitive Pythagorean triple $(63,16,65)$.

The pair $(m,n) = (8,3)$ gives the primitive Pythagorean triple $(55,48,73)$.

The pair $(m,n) = (8,5)$ gives the primitive Pythagorean triple $(39,80,89)$.

The pair $(m,n) = (8,7)$ gives the primitive Pythagorean triple $(15,112,113)$.

The pair $(m,n) = (9,2)$ gives the primitive Pythagorean triple $(77,36,85)$.

The pair $(m,n) = (9,4)$ gives the primitive Pythagorean triple $(65,72,97)$.

The pair $(m,n) = (9,8)$ gives the primitive Pythagorean triple $(17,144,145)$.

The pair $(m,n) = (10,1)$ gives the primitive Pythagorean triple $(99,20,101)$.

The pair $(m,n) = (10,3)$ gives the primitive Pythagorean triple $(91,60,109)$.

The pair $(m,n) = (10,7)$ gives the primitive Pythagorean triple $(51,140,149)$.

The pair $(m,n) = (10,9)$ gives the primitive Pythagorean triple $(19,180,181)$.