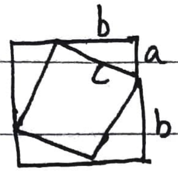
HW5.

1.

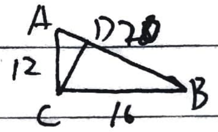


$(a+b)\times(a+b)$ square

$c^2 = (a+b)^2 - 4\times\frac{1}{2}\cdot a\cdot b$

$= a^2+b^2$

2.



$\triangle ABC$ similar $\triangle CBD$

$AC\times CB = CD\times AB$

$CD = 9.6$

$\frac{BC}{AB} = \frac{BD}{BC}$ $\quad \frac{AC}{AB} = \frac{AD}{AC}$

$BC^2 = AB\times BD$ $\quad AC^2 = AB\times AD$

$BC^2 + AC^2 = AB^2\,(BD+AD) = AB^2$

3. $a=120$ $\quad mn=60$

$\frac{120}{3} = \frac{x}{4} = \frac{y}{5}$ $\quad x=160$ $\quad y=200$

the primitive is $120,\ 160,\ 200$

4. Assume $3^2+4^2=5^2$

so $(3n)^2+(4n)^2=(5n)^2$ there exist $(3n, 4n, 5n)$ satisfy this statement.

so have infinity triples.

5. Fermat prove there are no solution of $a^4+b^4=c^4$

6. Fermat think $a^3+b^3=c^3$ has no solution, but Leonhard Euler prove Fermat's idea is true when $n=3$

7. $a^n+b^n=c^n$ doesn't have solution is Fermat's Last Theorem.

8. Andrew Wiles prove this is correct in 1994.