Name: _Jerry Jiang_

100%.
(10/10)

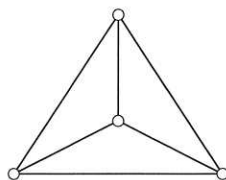Mark each of the following statements as true or false.

✓ __T__ 1. $5^{\log_5 17} = 17$.

✓ __T__ 2. The number 360 has 24 positive divisors. $6 \times 6 \times 10$ $2 \times 3 \times 2 \times 3 \times 2 \times 5 = 2^3 \times 3^2 \times 5^1$

$4 \times 3 \times 2$

✓ __T__ 3. ${}^nC_5 \times 5! = {}^nP_5$. $\dfrac{n!}{(n-5)!\,5!} \cdot 5! = \dfrac{n!}{(n-5)!}$ ${}^8 5\dfrac{n}{5} \times 5!$ $= 24$

✓ __T__ 4. $(A \cup B)' = A' \cap B'$. (venn diagram sketch)

✓ __T__ 5. The complete graph on four vertices (drawn below) has $\binom{4}{2}$ edges.

$\dfrac{4 \times 3}{2 \times 1} = 6$

24×120 $24^2 \times 5 = 4^2 \times 6^2 \times 5 = 2^4 \times 2^2 \times 3^2 \times 5$
$= 2^6 \times 3^2 \times 5$

$6 \times 120.$

$\{1,2,3,4\}$ $\{1,2,3\}$ $360 \times 2.$
$\{1,2,4,5\}$ $\{1,2,5\} \{6\}$ $2^4 \times 3^3 \times 5$

✓ __T̶F__ 6. The gcd of the numbers $4!\,5!$ and $3!\,6!$ is $6!$.

$2^6 \times 3^2 \times 5$

$1 \times 2 \times 3 \times 4 \times 5$
$\times 6.$

✓ __F__ 7. An octagon has 40 diagonals. $\dfrac{n(n-3)}{2} = 40$ $n(n-3) = 80.$ $n^2 - 3n - 80 = 0.$

$0 = 9 + 320 = 329$

✓ __T__ 8. If $x_1 = 3$, $x_2 = 7$ and $x_3 = -4$, then $\displaystyle\sum_{i=1}^{3}(x_i + |x_i|) = 20$. $3 + 3 + 7 + 7 + 4 - 4$ $\dfrac{329}{47}$

✓ __F__ 9. A set with 10 elements has 720 subsets containing 3 elements. $\dfrac{10 \times 9 \times 8 \times 24}{3 \times 2 \times 1}$

✓ __T__ 10. $\log_a b = \dfrac{1}{\log_b a}$. $\dfrac{\log_b b}{\log_b a}$

I'm so disappointed in you, Jerry — — WHERE IS THE BONUS MARK? WHY NO 11/10?!?