Geometry "yes" if the sums of any 2 #s is > the 3rd #. Name Solutions

Triangle Inequality Theorem test all combinations Date _____ Period ____

State if the three numbers can be the measures of the sides of a triangle.

1) 12, 26, 11

$12+26>11$ ✓ $\quad 12+11>26$ ✗

$38>11$ ✓ $\quad 23>26$ ✗

$26+11>12$ ✓ $\quad$ NO

$37>12$ ✓

2) 6, 9, 8

$6+8>9$ ✓ $\quad 9+8>6$ ✓

$14>9$ ✓ $\quad 17>6$ ✓

$6+9>8$ ✓ $\quad$ YES

$15>8$ ✓

3) 7, 3, 7

$7+3>7$ ✓ $\quad 7+7>3$ ✓

$10>7$ ✓ $\quad 14>3$ ✓

$3+7>7$ ✓ $\quad$ YES

$10>7$ ✓

4) 12, 6, 6

$6+6>12$ ✗ $\quad$ NO

$12>12$ ✗

= is not > !

5) 9, 17, 8

$9+17>8$ ✓ $\quad$ (I can stop as soon as I find an "X")

$26>8$ ✓ $\quad$ NO

$9+8>17$ ✗

$17>17$ ✗

6) 4, 9, 8

$4+8>9$ ✓ $\quad 9+8>4$ ✓

$12>9$ ✓ $\quad 17>4$ ✓

$4+9>8$ ✓ $\quad$ YES

$13>8$ ✓

, 11, 10, 17

$11+10>17$ ✓ $\quad 10+17>11$ ✓

$21>17$ ✓ $\quad 27>11$ ✓

$11+17>10$ ✓ $\quad$ YES

$28>10$ ✓

8) 6, 7, 4

~~$6+4>10$~~ $\quad 7+4>6$ ✓

$11>6$ ✓

$6+4>7$ ✓ $\quad$ yes

$10>7$ ✓

$6+7>4$ ✓

$13>4$ ✓

9) 8, 19, 9

$8+9>19$ ✗ $\quad$ NO

$17>19$ ✗

10) 12, 6, 14

$12+6>14$ ✓ $\quad 6+14>12$ ✓

$18>14$ ✓ $\quad 20>12$ ✓

$12+14>6$ ✓ $\quad$ yes

$26>6$ ✓

11) 22, 11, 9

$11+9>22$ ✗ $\quad$ NO

$20>22$ ✗

12) 11, 11, 3

$11+3>11$ ✓ $\quad 3+11>11$ ✓

$14>11$ ✓ $\quad 14>11$ ✓

$11+11>3$ ✓ $\quad$ yes

$22>3$ ✓

Two sides of a triangle have the following measures. Find the range of possible measures for the third side. 3rd side is between the difference & the sum of the other 2 sides

13) 9, 11

$11-9 < x < 11+9$ ← show it

$2 < x < 20$

(not = 2 , not = 20)

14) 6, 8

$8-6 < x < 8+6$

$2 < x < 14$

15) 12, 7

$12-7 < x < 12+7$

$5 < x < 19$

16) 10, 12

$12-10 < x < 12+10$

$2 < x < 22$

17) 7, 10

$10-7 < x < 10+7$

$3 < x < 17$

18) 7, 8

$8-7 < x < 8+7$

$1 < x < 15$

19) 8, 10

$10-8 < x < 10+8$

$2 < x < 18$

20) 12, 6

$12-6 < x < 12+6$

$6 < x < 18$

21) 6, 9

$9-6 < x < 9+6$

$3 < x < 15$

22) 11, 7

$11-7 < x < 11+7$

$4 < x < 18$