

To Be or Not To Be a Triangle?

Example

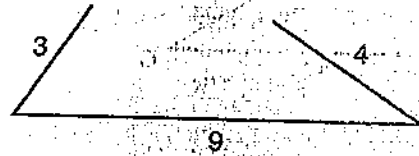
Can the side lengths 3, 4, and 9 form a triangle?

In a triangle, the sum of the lengths of any two sides must be greater than the length of the third side.

The sum of 3 and 4 is not greater than 9.

The sides will not connect.

So the side lengths will not form a triangle.



Determine whether the side lengths given could form a triangle.

- | | | | | |
|---|---------------|--|-------|------|
| 1 | 2, 5, 10 | $2+5=7 < 10$ | A yes | B no |
| 2 | 3, 7, 9 | $3+7=10 > 9 \checkmark$
$7+9=16 > 3 \checkmark$
$3+9=12 > 7 \checkmark$ | C yes | K no |
| 3 | 4, 6, 12 | $4+6=10 < 12$ | B yes | E no |
| 4 | 15, 22, 32 | $15+22 > 32 \checkmark$
$32+15=47 > 22$
$22+32 > 15 \checkmark$ | A yes | K no |
| 5 | 2.5, 3.5, 5.5 | $2.5+3.5=6 > 5.5 \checkmark$
$3.5+5.5=9 > 2.5 \checkmark$
$2.5+5.5=8 > 3.5 \checkmark$ | K yes | L no |
| 6 | 8, 9, 20 | $8+9=17 < 20$ | G yes | D no |

Which length could form a triangle with the two given side lengths?

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|----|----------|--|-------|--------|--------|
| 7 | 10, 15 | $10+12 < 15$
$10+6 > 15$ | F 2 | I 4 | G 6 |
| 8 | 8, 17 | $8+15 > 17$
$17+15 > 8$ | H 8 | J 15 | F 30 |
| 9 | 12, 16 | $12+16=28 > 14$ | F 14 | D 28 | H 30 |
| 10 | 6, 6 | $6+6 > 8$ | H 8 | I 13 | L 15 |
| 11 | 4.8, 6.2 | $4.8+1.2=6.0 < 6.2$
$4.8+10.6=11 > 6.2$
$6.2+10.6 > 4.8$ | B 1.2 | L 10.6 | C 14.4 |
| 12 | 50, 100 | $50+30 < 100$
$50+40 < 100$
$50+70 > 120$ | E 30 | A 40 | I 70 |

