1.OA Valid Equalities?

Alignment 1: 1.OA.D.7

Decide if the equations are "true" or "false." Make sure you can explain your answer.

a. $2 + 5 = 6$

b. $3 + 4 = 2 + 5$

c. $8 = 4 + 4$

d. $3 + 4 + 2 = 4 + 5$

e. $5 + 3 = 8 + 1$

f. $1 + 2 = 12$

g. $12 = 10 + 2$

h. $3 + 2 = 2 + 3$

i. $32 = 23$
Commentary:
While the written answers are simple "true" or "false" responses, students need to be working in a setting where they have opportunities to elaborate with verbal explanations.

Many of these problems naturally lead to discussions of topics such as place value and properties of addition.

Solution: Some possible explanations.
While the question asks for simple "true" or "false" answers, complete solutions include some valid explanation. There are many possible explanations, so we give a variety of kinds of explanations in these solutions.

a. False. $2 + 5$ equals 7 and not 6.
c. True. Since $4 + 4 = 8$, $8 = 4 + 4$.
d. True. We can combine the three and the two on the left to get 5, and then after reordering both sides are $4 + 5$.
e. False. $3 + 5$ is 8 but $8 + 1$ is 9.
f. False. $1 + 2 = 3$, which is less than 12.
g. True. If you count up two from 10 you get 12. (Alternately, 12 means one ten and two ones.)
h. True. You can always change the order of numbers being added.
i. False. 32 is 3 tens and 2 ones. 23 is 2 tens and 3 ones.

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