6.EE.3 I can apply the properties of operations-especially the distributive property-to generate equivalent expressions.

Are the expressions equivalent? If so, which property makes them equivalent?

1. 8+z+4 and 4+8+z
2. 20g-10 and 10\*g-20
3. (4\*k)\*m and 4\*(k\*m)
4. 30w+12 and 6(5w+2)
5. 33\*g\*4 and 4\*33\*g
6. 10(2+3k) and 20+30k
7. 11+3-5 and 5-3+11
8. (x+y)+g and x+(y+g)
9. 64k-z and 8(8k+z)
10. 15+y+b and b+y+15

Apply the properties of substitution to determine if the pairs of expressions are equivalent.

1. (24+g)+b and 24+(g+b) b=1 g=2
2. 6+x+z and x+z+6 z=3 x=5
3. 8(2k+3) and 64+11 k=4
4. 17+m-s and s-m+17 s=10 m=15
5. 11(k+3) and 22+33 k=2

Apply the properties of the operation listed to generate an equivalent expression for each expression listed below.

1. 4+m commutative property
2. 17\*(g\*k) associative property
3. (30+n)+4 associative property
4. 5(6+b) distributive property
5. z\*w\*5 commutative property
6. (w+6)+7 associative property
7. 3(5+z) distributive property
8. 15(b+2) associative property
9. 12(p-3) distributive property