Simplify

1. $4(2x-1)-3(5x-2)$

2. $\frac{2}{5}(10k+25)-\frac{3}{4}(12k-8)+2k$

3. $-7+4(3g+2)+7(2g-1)-9g$

4. $9(2t+4)-5(3t-5)$

5. $-(5r-7)+8(11r+1)$

6. $3(8x-1)-5(2x+3)$

7. $5(2k+3)-7(2k-1)+2k$

8. $-11+5(2g+7)+3(2g-5)-13g$

9. $9(3t+5)-5(7t-2)$

10. $-(7r-2)+3(3r+1)$

Perform the Indicated Unit Conversion
(Use two decimal places unless the answer is exceptionally small e.g. .000027 mi / cup)

11. Convert 38 miles per hour to feet per sec.

11. _____

12. Convert 102 km per week to meters per hour.

12. _____

13. Convert 145 miles per gallon to inches per cup.

13. _____

14. Convert 6,200 yards per pint to miles per gallon.

14. _____

15. Convert 83,000 km per week to meters per minute.

15. _____

Translate the following (There is nothing to solve in this section)
Use "n" to represent the number

17. Twice the sum of four times a number and nine is six.

18. The cube of B decreased by three is equal to eleven less than twice B.

19. The square of the difference of two times x and eight is equal to four more than five times x.

20. A number decreased by seven is the same as three times the number increased by two.

21. Twice the difference of five times a number and two is six.

22. The cube of M increased by four is equal to three less than twice G.

23. The square of the sum of five times x and nine is equal to twelve more than three times x.

24. A number increased by three is the same as five times the number decreased by eleven.

25. Four times the sum of twice a number and three.

26. Nine less than five times a number .

27. The sum of a number squared and three.

28. Eight more than five times a number squared.

29. Two times the sum of six times the cube of a number and one is four less than nine times the number.

30. The square of the difference of seven times a number and two is three more than five times the sum of the number and five.

31. Nine times the sum of four times a number and seven is four less than nine times the number.

Order of operations

1. $\left(\frac{1}{3}\right)^2 - \left[\frac{2}{3} + \frac{1}{5} \div 2 \bullet \frac{5}{6} - \frac{3}{4}\right]$

2. $\left(\frac{1}{2}\right)^2 - \left[\frac{1}{5} - \frac{2}{3} \bullet \frac{6}{7} \div \frac{5}{14} + \frac{2}{5}\right]$

3. $\left(\frac{1}{3}\right)^2 - \left[\frac{1}{3} - \frac{1}{4} \div \frac{5}{6} + \frac{1}{2}\right]$

4. $4^2 - \left[3(2-6) + 5^2\right]$

5. $125 \div \left[5(2+3)\right] - 2(7)$

6. $5\left[\frac{1}{2} + \left(\frac{3}{5} \bullet \frac{5}{6}\right) \div \frac{5}{8}\right]$

Patterns

A. 6, 4, 8, 5, 15, 11, _____ , _____ , _____ , _____

B. 2, 4, 7, 11, 16, _____ , _____ , _____ , _____

C. 5, 6, 4, 7, 3, 8, _____ , _____ , _____ , _____

D. 1, 3, 1, 2, 6, 4, 5, 15, 13, 14 _____ , _____ , _____

Determine if each of the following operations are closed under the given number set.

1. {Odd Integers}; $A \cdot B + 6$

Counter example if applicable:

2. {Whole}; $A^2 + B$

Counter example if applicable:

3. {Odd Integers}; Addition

Counter example if applicable:

4. {Even Integers}; addition

Counter example if applicable:

5. {Even Integers}; $(A - 3) + (B + 1)$

Counter example if applicable: