Integers

This sheet is designed as a review aid. If you have not previously studied this concept or after reviewing the contents you still don't pass you should enroll in the appropriate math class.

Integers are positive and negative whole numbers. Applications with integers involve orders of operation (the order in which you work the parts in a complex equation).

Some Basic Rules:

1. Unless otherwise specified do all multiplication and division prior to doing adding and subtracting.
$$1+3\,x\,4-5=1+12-5=8$$

2. Work all steps inside parentheses () first. If there are brackets [] work these problems next. Then work the final steps using rule 1. If brackets are used they should have a set of parentheses inside them.
$$1+3(4-2)-2=1+3(2)-2=1+6-2=5$$

3. If a parentheses or bracket set has a number in front of it without a math symbol (+,-, etc) you will multiply the number in front by the solution to the equation inside the bracket set or parentheses.
$$3(2)=3\,x\,2=6$$

4. When there is a minus sign in front if the first number it means the number is a negative number. It does not indicate that you should subtract.
$$4(-3)=4\,x(-3)=-12$$

5. If there is a line with an equation above and below it, work the two equations and divide the upper answer by the lower answer.
$$\frac{3(2+6)}{3\,x\,2+6}=\frac{3\,x\,8}{6+6}=\frac{24}{12}=2$$

6. Adding a negative number to a positive number is the same as subtracting a positive number.
$$3+(-2)=3-2=1$$

7. Subtracting a negative number from a positive number is the same as adding a positive number.
$$3-(-2)=3+2=5$$

8. When adding positive numbers, the answer will remain positive.

9. When adding negative numbers, work like adding positive numbers and put a minus (-) symbol in front of the answer. It will remain negative.
$$-2+(-7)=-9$$

10. When adding a positive and a negative together, subtract the smaller number from the larger and place a minus sign in front of the answer if the larger number in the equation was negative. If the larger number was positive, your answer will also be positive. Using parentheses to enclose the second equation with the symbol of the larger number in front helps to remind you whether or not you need the minus sign in front of your answer.
$$-8+3=-(8-3)=-5 \qquad 3-8=-(8-3)=-5 \qquad -3+12=+(12-3)=9$$

11. When multiplying or dividing two positive numbers, the answer will always be positive.

12. When multiplying 2 negative numbers, the answer will always be positive.

13.

14. When multiplying a positive and a negative number, the answer will always be negative.

15. When dividing a negative number by a positive, the answer will always be negative.

16. When dividing a negative number by a negative, the answer will always be positive.

17. When dividing a positive number by a negative, the answer will always always be negative.

18. When an equation has a vertical straight line on both sides of it, the lines indicate a term called "Absolute Value." This simply means that whatever the answer is (positive or negative) you will write it as a positive number. Like parentheses or brackets, the equation within the lines should be worked first.

$$|6-9| = |-3| = 3 \qquad |3+2| = |5| = 5 \qquad 3\times|6-8| = 3\times|-2| = 6$$

EXAMPLE:

$$\frac{3(4+6)-|3-5|}{6-(-3+2)\times 2} = \frac{3(10)-|-2|}{6-(-1)\times 2} = \frac{30-2}{6-(-2)} = \frac{28}{8} = 3\frac{1}{2}$$

Work problems in parentheses first	Do Multiplication/ Division	Do Addition/ Subtraction	Reduce to simplest terms	Write answer in fraction or decimal form as specified in the original problem or directions.