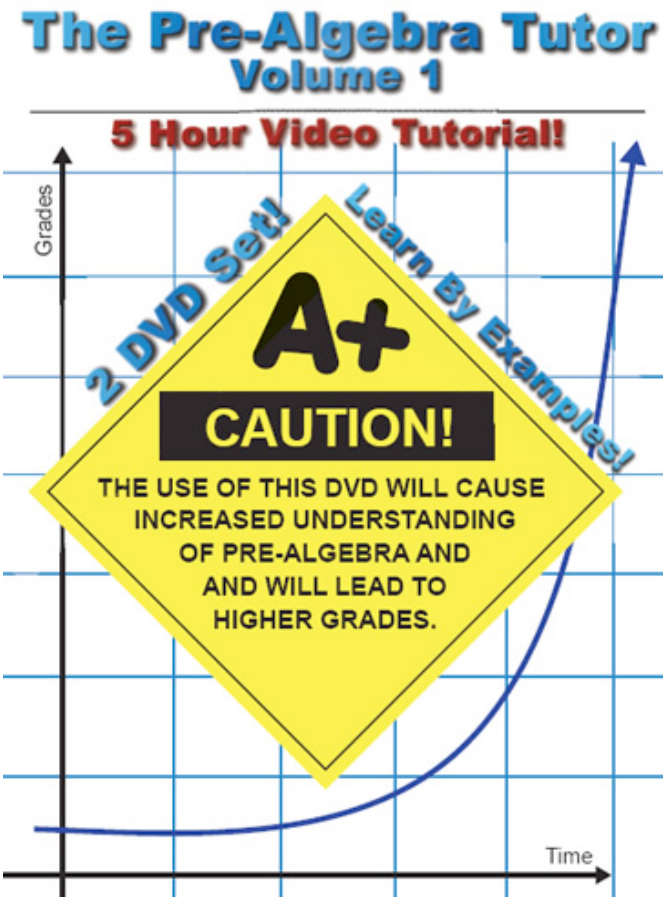
Supplemental Worksheet Problems To Accompany:

The Pre-Algebra Tutor: Volume 1
Section 9 – Order of Operations

Please watch Section 9 of this DVD before working these problems.

The DVD is located at:

http://www.mathtutordvd.com/products/item66.cfm



Simplify the Following:

1) $2+7-8$

2) $10\cdot 5-25$

3) $12+4-6$

4) $5\cdot 5-30$

5) 4^2-12+2

6) $21\div 7+3$

7) $8 \div 4(-4) + 2$

8) $(12 - 7)^2 + 2$

9) $8 \div 2^3 - 10$

10) $-4 + 2 \cdot 4 \div 2$

11) $(-4 + 2) \cdot (4 \div 2)$

12) $9 - 6 \div 3 \cdot (-10)^2$

13) $10^3 \div (5+2+3)^2$

14) $\dfrac{9-2\cdot 2}{2+3}$

15) $\dfrac{21\div 3+(10-8)}{2-(-1)}$

16) $[(-2+10)-2]\div 2\cdot 5$

17) $(4^2-6)^2 \div 25$

18) $(17+3)-12\div 3+7$

19) $\dfrac{2(-5)+6}{[(6-7)-1]^2}$

20) $(5\cdot 2+16-3^3)+1$

21) $[(60\div 2-15)-(5^2-2-3)]\cdot(-2)$

22) $43-\dfrac{(15\div 5)}{2^3-7}+14$

23) $[(6^2+4)\div 5]\div(-2)$

24) $10[(6-1)+(-60\div 5)]$

25) $[(9+4^2\div 8)+16]\div 3^2$

Evaluate and solve the following expressions

$$a=-5, \quad b=2, \quad c=11, \quad d=-1, \quad e=10$$

26) $c+5[(a^2-b)+10\div 2]$

27) $\dfrac{(9-d)a+50}{e^b}$

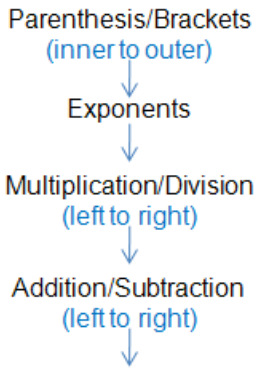
28) $(8-e\div b)c+16\div(a+2+1)$

29) $\dfrac{[2-3\div(b+1)+11]^2}{(-1)c+d}$

30) $\{[(4+1)(5-a)]\div(e)(a)\}-20d$

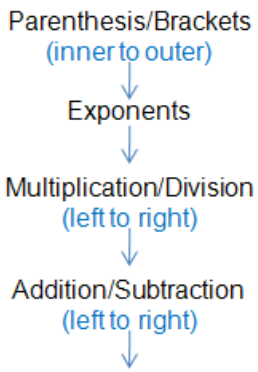
Question	Answer
1) $2+7-8$	Begin
Parenthesis/Brackets (inner to outer) ↓ Exponents ↓ Multiplication/Division (left to right) ↓ Addition/Subtraction (left to right) ↓	First we need to remember our order of operations rules so we can solve for the expression the right way.
$2+7=9$ $2+7-8=9-8$ $9-8=1$	Next we notice we are only dealing with addition and subtraction so we work from left to right one operation at a time. The first operation is an addition problem. We add the two integers and use the result to finish out the expression. The next operation is a simple subtraction problem. **Ans: 1**

2) $10 \cdot 5 - 25$	Begin
Parenthesis/Brackets (inner to outer) ↓ Exponents ↓ Multiplication/Division (left to right) ↓ Addition/Subtraction (left to right) ↓	First we need to remember our order of operations rules so we can solve for the expression the right way.
$10 \cdot 5 = 50$ $10 \cdot 5 - 25 = 50 - 25$ $50 - 25 = 25$	Next we notice we have both multiplication and subtraction to work. So we will work our multiplication first then our subtraction. We simply multiply the first two integers and use the result to finish out the expression. The next operation is a simple subtraction problem. **Ans: 25**

3) $12+4-6$	Begin
	First we need to remember our order of operations rules so we can solve for the expression the right way.
$12+4=16$ $12+4-6=16-6$ $16-6=10$	Next we notice we are only dealing with addition and subtraction so we work from left to right one operation at a time. The first operation is an addition problem. We add the two integers and use the result to finish out the expression. The next operation is a simple subtraction problem. **Ans: 10**

4) $5 \cdot 5 - 30$	Begin
Parenthesis/Brackets (inner to outer) ↓ Exponents ↓ Multiplication/Division (left to right) ↓ Addition/Subtraction (left to right) ↓	First we need to remember our order of operations rules so we can solve for the expression the right way.
$5 \cdot 5 - 30 = 25 - 30$ $25 - 30 = -5$	Next we notice we have both multiplication and subtraction to work. So we will work our multiplication first then our subtraction. We simply multiply the first two integers and use the result to finish out the expression. The next operation is a subtraction. We notice we are subtracting a bigger number from a smaller number so our result will be negative. **Ans: -5**

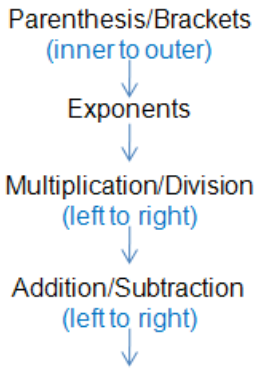
5) $4^2 - 12 + 2$	Begin
Parenthesis/Brackets (inner to outer) ↓ Exponents ↓ Multiplication/Division (left to right) ↓ Addition/Subtraction (left to right) ↓	First we need to remember our order of operations rules so we can solve for the expression the right way.
$4^2 - 12 + 2 = 16 - 12 + 2$ $4 + 2$ $4 + 2 = 6$	We see we have an exponent, subtraction and addition so we will work our exponent first. After we re-evaluate our expression we work the subtraction. All we are left with is a simple addition problem. **Ans: 6**

6) $21 \div 7 + 3$	Begin
	First we need to remember our order of operations rules so we can solve for the expression the right way.
$21 \div 7 + 3 = 3 + 3$ $3 + 3 = 6$	We see we have division and addition so we will work our division first. After we re-evaluate our expression we notice we are left with addition. **Ans: 6**

7) $8 \div 4(-4) + 2$	Begin
Parenthesis/Brackets (inner to outer) ↓ Exponents ↓ Multiplication/Division (left to right) ↓ Addition/Subtraction (left to right) ↓	First we need to remember our order of operations rules so we can solve for the expression the right way.
$8 \div 4(-4) + 2 = 2(-4) + 2$ $2(-4) + 2 = -8 + 2$ $-8 + 2 = -6$	We notice we have division, multiplication and addition in our expression. We will divide first as we go from left to right. Once we find our result from the division, we see that we have to multiply next. After our multiplication we are left with adding two integers with different signs. So we subtract the absolute values and keep the sign of the largest absolute value which is negative. **Ans: -6**

8) $(12-7)^2+2$	Begin
Parenthesis/Brackets (inner to outer) ↓ Exponents ↓ Multiplication/Division (left to right) ↓ Addition/Subtraction (left to right) ↓	First we need to remember our order of operations rules so we can solve for the expression the right way.
$(12-7)^2+2=(5)^2+2$	Next we notice we have parenthesis, exponents and addition and subtraction. We work whatever is inside the parenthesis first which is the subtraction of two integers.
$(5)^2+2=25+2$	We then re-evaluate the expression and perform the exponent next.
$25+2=27$	Now all that is left is our addition of two integers **Ans: 27**

9) $8 \div 2^3 - 10$	Begin
Parenthesis/Brackets (inner to outer) ↓ Exponents ↓ Multiplication/Division (left to right) ↓ Addition/Subtraction (left to right) ↓	First we need to remember our order of operations rules so we can solve for the expression the right way.
$8 \div 2^3 - 10 = 8 \div 8 - 10$ $8 \div 8 - 10 = 1 - 10$	We notice we have an exponent, division and subtraction. First we work the exponent expression. We re-evaluate our expression and notice we have to divide next.
$1 - 10 = -9$	We then plug our division result back into the expression and end up with a subtraction. Since we are subtracting a bigger number from a smaller number our result will be negative. **Ans: -9**

10) $-4+2\cdot 4\div 2$	Begin
	First we need to remember our order of operations rules so we can solve for the expression the right way.
$-4+2\cdot 4\div 2=-4+8\div 2$	We notice we are multiplying, dividing and adding. We will perform our multiplication/division first from left to right.
$-4+8\div 2=-4+4$	After we multiply we perform our division next.
$-4+4=0$	After we complete our division the only thing left to do is add two integers. We notice we are adding two integers with different sign but equal absolute values which gives us zero. **Ans: 0**

11) $(-4+2)\cdot(4\div 2)$	Begin
Parenthesis/Brackets (inner to outer) ↓ Exponents ↓ Multiplication/Division (left to right) ↓ Addition/Subtraction (left to right) ↓	First we need to remember our order of operations rules so we can solve for the expression the right way.
$(-4+2)\cdot(4\div 2)=(-2)\cdot(4\div 2)$	We notice we have two sets of parenthesis and we are multiplying the content of each parenthesis to each other. So we work what is inside the parenthesis first. In the first parenthesis we are adding two integers with different signs so we subtract and take the sign of the largest absolute value which is negative.
$(-2)\cdot(4\div 2)=(-2)\cdot 2$	Next we work the other parenthesis which is a division problem.
$(-2)\cdot 2=-4$	Now that we are complete with the parenthesis we now can perform our multiplication of our results. We are multiplying two integers with different signs so we will end up with a negative. **Ans: -4**

12) $9-6\div3\cdot(-10)^2$	Begin
Parenthesis/Brackets (inner to outer) ↓ Exponents ↓ Multiplication/Division (left to right) ↓ Addition/Subtraction (left to right) ↓	First we need to remember our order of operations rules so we can solve for the expression the right way.
$9-6\div3\cdot(-10)^2=9-6\div3\cdot100$	We notice we have an exponent, multiplication, division and subtraction. First we perform our exponent expression.
$9-6\div3\cdot100=9-2\cdot100$	Next we perform our division since it comes before our multiplication as we go left to right.
$9-2\cdot100=9-200$	After our division we perform our multiplication
$9-200=-191$	All that is left is a subtraction problem. We notice we are subtracting a bigger number from a smaller number so we will end up with a negative integer. So we simple subtract and place our negative sign on our result. **Ans: -191**

13) $10^3 \div (5+2+3)^2$	Begin
Parenthesis/Brackets (inner to outer) ↓ Exponents ↓ Multiplication/Division (left to right) ↓ Addition/Subtraction (left to right) ↓	First we need to remember our order of operations rules so we can solve for the expression the right way.
$10^3 \div (5+2+3)^2$ $5+2+3=7+3=10$	We notice we have expressions within some parenthesis, two exponents and division. First we perform everything that is inside the parenthesis which is some addition.
$10^3 \div 10^2 = 1000 \div 100$ $= 10$	We next do the exponents and the final division. **Ans: 10**

14) $\dfrac{9-2\cdot 2}{2+3}$	Begin
Parenthesis/Brackets (inner to outer) ↓ Exponents ↓ Multiplication/Division (left to right) ↓ Addition/Subtraction (left to right) ↓	First we need to remember our order of operations rules so we can solve for the expression the right way.
$\dfrac{9-2\cdot 2}{2+3}=\dfrac{9-4}{2+3}$	We notice we have expressions in both our numerator and denominator. We treat the numerator and denominator separately as if we had imaginary parenthesis around our expressions in our numerator and around our denominator. As we work our numerator we notice we have multiplication and subtraction so we perform our multiplication first.
$\dfrac{9-4}{2+3}=\dfrac{5}{2+3}$	Next we are left with a simple subtraction in our numerator.
$\dfrac{5}{2+3}=\dfrac{5}{5}$	We now work the expression in our denominator and notice it's a simple addition problem.
	Now that we have completed all expressions in our

$\frac{5}{5}=1$	numerator and denominator, we can perform our division. Notice we are dividing a number in by itself so we end up with 1. **Ans: 1**

15) $\dfrac{21\div 3+(10-8)}{2-(-1)}$	Begin
Parenthesis/Brackets (inner to outer) ↓ Exponents ↓ Multiplication/Division (left to right) ↓ Addition/Subtraction (left to right) ↓	First we need to remember our order of operations rules so we can solve for the expression the right way.
$\dfrac{21\div 3+(10-8)}{2-(-1)}=\dfrac{21\div 3+2}{2-(-1)}$	We notice we have expressions in both our numerator and denominator. We will work them separately. In our numerator we notice we have parenthesis, division and addition. We work the expression inside the parenthesis first which is a simple subtraction.
$\dfrac{21\div 3+2}{2-(-1)}=\dfrac{7+2}{2-(-1)}$	Now that we our done with our parenthesis we work our division next.
$\dfrac{7+2}{2-(-1)}=\dfrac{9}{2-(-1)}$	The only thing left in our numerator is a simple addition problem.

$\frac{9}{2-(-1)} = \frac{9}{2+1} = \frac{9}{3}$	Next we work the expression in our denominator. We notice we are subtracting a negative number so we simply add the opposite.
$\frac{9}{3} = 3$	Now that we have completed all expressions in our numerator and denominator, we can perform our division. **Ans: 3**

16) $[(-2+10)-2]\div 2\cdot 5$	Begin
Parenthesis/Brackets (inner to outer) ↓ Exponents ↓ Multiplication/Division (left to right) ↓ Addition/Subtraction (left to right) ↓	First we need to remember our order of operations rules so we can solve for the expression the right way.
$[(8)-2]\div 2\cdot 5$	We notice we have some brackets, division and multiplication. So we work whatever is inside the brackets first. Inside the brackets we notice we have some parenthesis and subtraction so we work the expression inside the parenthesis first which is addition of two integers with different signs. We subtract the integers and take the sign of the largest absolute value which is positive.
$[6]\div 2\cdot 5$	We continue to work inside the brackets and all that is left is a simple subtraction problem. After solving this we are complete with our brackets.
$6\div 2\cdot 5=3\cdot 5$	All we have left is division and multiplication. As we go left to right we notice we perform our division first.

$3 \cdot 5 = 15$	The last thing that is left is our multiplication so we multiply our two integers together. **Ans: 15**

17) $(4^2-6)^2 \div 25$	Begin
Parenthesis/Brackets (inner to outer) ↓ Exponents ↓ Multiplication/Division (left to right) ↓ Addition/Subtraction (left to right) ↓	First we need to remember our order of operations rules so we can solve for the expression the right way.
$(16-6)^2 \div 25$	We notice we have parenthesis, exponents and division. So we work our expressions inside our parenthesis first. Inside our parenthesis we have an exponent and subtraction so we perform our exponent first.
$(10)^2 \div 25$	Once we finish our exponent we perform our subtraction next.
$(10)^2 \div 25 = 100 \div 25$	Now that we have finished everything inside the parenthesis we do what is outside the parenthesis next. This is an exponent and a division expression so we perform our exponent next.
$100 \div 25 = 4$	Now we are left with division so we divide our two positive integers. **Ans: 4**

18) $(17+3)-12\div 3+7$	Begin
Parenthesis/Brackets (inner to outer) ↓ Exponents ↓ Multiplication/Division (left to right) ↓ Addition/Subtraction (left to right) ↓	First we need to remember our order of operations rules so we can solve for the expression the right way.
$(20)-12\div 3+7$	We notice we have parenthesis, division and addition and subtraction. We will do what is inside the parenthesis first which is a simple addition.
$20-4+7$	Once we are complete with our parenthesis we are left with division and addition and subtraction so we perform our division next.
$20-4+7=16+7$	We are now left with addition and subtraction but will perform our subtraction first as we go from left to right.
$16+7=23$	The last thing left to do is a simple addition problem. **Ans: 23**

19) $\dfrac{2(-5)+6}{[(6-7)-1]^2}$	Begin
Parenthesis/Brackets (inner to outer) ↓ Exponents ↓ Multiplication/Division (left to right) ↓ Addition/Subtraction (left to right) ↓	First we need to remember our order of operations rules so we can solve for the expression the right way.
$\dfrac{2(-5)+6}{[(-1)-1]^2}$	We notice we have expressions in our numerator and our denominator. We will treat them separately. We notice we have brackets in our denominator so we know we will work that first. Inside the brackets we have parenthesis and subtraction so we work the expression inside the parenthesis which is a subtraction problem. Since we are subtracting a bigger number from a smaller number we will end up with a negative sign. So we subtract the integers and place a negative sign in front.

$\frac{2(-5)+6}{(-2)^2}$	Next we work the remaining expression inside our brackets which is subtraction. We notice we are subtracting two negative integers so we add the two and place a negative sign in front of our result.
$\frac{2(-5)+6}{4}$	Last operation in our denominator is an exponent of the result from our expressions inside our brackets.
$\frac{-10+6}{4}$	Now we move up to our numerator and notice we have multiplication and addition so we are going to multiply first. We are multiplying two integers with different signs so our result will be negative.
$\frac{-4}{4}$	Our last operation in our numerator is an addition problem. We notice we are adding two integers with different signs so we subtract the two and keep the sign from the largest absolute value which is negative.
$\frac{-4}{4}=-1$	Now that we have completed all expressions in our numerator and denominator we can divide the results. We notice we are dividing two integers with different signs so our result will be negative. **Ans: -1**

20) $(5\cdot 2+16-3^3)+1$	Begin
Parenthesis/Brackets (inner to outer) ↓ Exponents ↓ Multiplication/Division (left to right) ↓ Addition/Subtraction (left to right) ↓	First we need to remember our order of operations rules so we can solve for the expression the right way.
$(5\cdot 2+16-27)+1$	We notice we have parenthesis and addition so we will work inside our parenthesis first. Within our parenthesis we have an exponent, multiplication and addition and subtraction. We perform our exponent first.
$(10+16-27)+1$	We are left with multiplication addition and subtraction inside our parenthesis so we will perform our multiplication next.
$(26-27)+1$	Next we are left with addition and subtraction in our parenthesis. We will perform our addition next as we go from left to right inside our parenthesis.
$(-1)+1$	We then do our subtraction. We notice we are subtracting a bigger number from a smaller number so our result will be negative.

$(-1)+1=0$	Now that we are complete with our parenthesis we work what is outside of it which is a simple addition problem. We are adding two integers with different signs and notice right away as we subtract that we end up with zero. **Ans: 0**

21) $[(60 \div 2 - 15) - (5^2 - 2 - 3)] \cdot (-2)$	Begin
Parenthesis/Brackets (inner to outer) ↓ Exponents ↓ Multiplication/Division (left to right) ↓ Addition/Subtraction (left to right) ↓	First we need to remember our order of operations rules so we can solve for the expression the right way.
$[(30 - 15) - (5^2 - 2 - 3)] \cdot (-2)$	We notice we have some brackets and a lot of expressions within them. Outside the brackets we have multiplication so we will work inside the brackets first. Inside the brackets we notice two sets of parenthesis. We will work the first set of parenthesis Inside the first parenthesis we have division and subtraction so we will perform our division first.
$[(15) - (5^2 - 2 - 3)] \cdot (-2)$	Next we will do the subtraction inside the first parenthesis to finish out the expressions in the parenthesis.
$[15 - (25 - 2 - 3)] \cdot (-2)$	Now we move on to the next parenthesis and notice we have an exponent and subtraction. We perform our exponent expression first.
	Now we are left with two

$[15-(20)]\cdot(-2)$	subtraction expressions. We perform one at a time from left to right.
$[-5]\cdot(-2)$	The last thing to do inside our brackets now that we have finished both our parenthesis is subtraction. We notice we are subtracting a bigger number from a smaller number so our result will be negative.
$(-5)\cdot(-2)=10$	Now that we have finished everything inside our brackets we go outside and perform the remaining operation which is multiplication. We notice we are multiplying two integers with the same sign so our result will be positive. **Ans: 10**

22) $43-\frac{(15\div 5)}{2^3-7}+14$	Begin
Parenthesis/Brackets (inner to outer) ↓ Exponents ↓ Multiplication/Division (left to right) ↓ Addition/Subtraction (left to right) ↓	First we need to remember our order of operations rules so we can solve for the expression the right way.
$43-\frac{3}{2^3-7}+14$	We notice we have division subtraction and addition so we perform our division first. However, in our division we have expressions in the numerator and denominator we have to take care of first. If we do our numerator first we see we have a division problem so we divide the two integers.
$43-\frac{3}{8-7}+14$	Now that we are complete with our numerator we move on to our denominator and notice an exponent and subtraction so we perform our exponent first.
$43-\frac{3}{1}+14$	The last operation in our denominator is a simple subtraction.

$43-3+14$	Now that we have simplified our numerator and denominator we can perform our division between the numerator and denominator.
$40+14$	After our division, we are left with subtraction and addition. As we go from left to right we perform our subtraction first.
$40+14=54$	Our last expression is a simple addition problem. **Ans: 54**

23) $[(6^2+4)\div 5]\div(-2)$	Begin
Parenthesis/Brackets (inner to outer) ↓ Exponents ↓ Multiplication/Division (left to right) ↓ Addition/Subtraction (left to right) ↓	First we need to remember our order of operations rules so we can solve for the expression the right way.
$[(36+4)\div 5]\div(-2)$	We notice we have brackets and division so we will perform and work inside our brackets first. Inside our brackets we notice parenthesis and division so we will work inside our parenthesis first. Inside our parenthesis we notice we have an exponent and addition so we will do our exponent expression first.
$[(40)\div 5]\div(-2)$	Next we perform the addition that remains inside our parenthesis.
$[8]\div(-2)$	Now that we are complete with our parenthesis we look to see outside our parenthesis and notice the division we have to perform next which is also the last expression left inside our brackets.

$8 \div (-2) = -4$	Now that we are complete inside the brackets we work outside the brackets and perform another division expression. We notice we are dividing two numbers with different signs so we will end up with a negative result. **Ans: -4**

24) $10[(6-1)+(-60\div 5)]$	Begin
Parenthesis/Brackets (inner to outer) ↓ Exponents ↓ Multiplication/Division (left to right) ↓ Addition/Subtraction (left to right) ↓	First we need to remember our order of operations rules so we can solve for the expression the right way.
$10[(5)+(-60\div 5)]$	We notice we have some brackets and multiplication so we will work inside the brackets first. Inside the brackets we notice two sets of parenthesis and addition so we will be working the parenthesis first. We work the first set of parenthesis and notice we are subtracting so we subtract the two integers.
$10[5+(-12)]$	Now that we finished the first set of parenthesis we move to the next set of parenthesis and notice we are dividing inside of them. We notice that we are dividing two integers with different signs so our result will be negative.

$10[-7]$	Since we are complete with our parenthesis we do our remaining expression inside our brackets which is addition. We notice we are adding two integers with different signs so we subtract them and take the sign of the largest absolute value which is negative.
$10(-7) = -70$	Now that we have completed everything inside our brackets we can work the remaining expression outside the brackets which is multiplication. We notice we are multiplying two integers with different signs so our result will be negative. **Ans:-70**

25) $[(9+4^2 \div 8)+16] \div 3^2$	Begin
Parenthesis/Brackets (inner to outer) ↓ Exponents ↓ Multiplication/Division (left to right) ↓ Addition/Subtraction (left to right) ↓	First we need to remember our order of operations rules so we can solve for the expression the right way.
$[(9+16 \div 8)+16] \div 3^2$	We notice we have some brackets so we work inside the brackets first. Inside the brackets we have parenthesis and addition so we will work inside the parenthesis. Inside the parenthesis we have an exponent, division and addition. We work the exponent first.
$[(9+2)+16] \div 3^2$	Now we are left with division and addition inside our parenthesis so we perform our division next.
$[(11)+16] \div 3^2$	The only thing left in our parenthesis is addition so we simply add the two positive integers.
$[27] \div 3^2$	Once complete with our parenthesis the other thing left inside our brackets is a simple addition problem.

$27 \div 9$	Now that we have finished working inside our brackets we notice outside the brackets we had an exponent and division so we perform the exponent next.
$27 \div 9 = 3$	The only thing left is division. **Ans: 3**

Question	Answer
26) $c+5[(a^2-b)+10\div 2]$	Begin
$11+5[((-5)^2-2)+10\div 2]$	First, let's evaluate the expression by substituting the values expressed by the letters.
Parenthesis/Brackets (inner to outer) ↓ Exponents ↓ Multiplication/Division (left to right) ↓ Addition/Subtraction (left to right) ↓	Then we need to remember our order of operations rules so we can solve for the expression the right way.
$11+5[(25-2)+10\div 2]$	We notice we have some brackets so we will be working inside the brackets first. Inside our brackets we notice some parenthesis so we will work inside the parenthesis first. Inside of the parenthesis we have an exponent and subtraction so we work the exponent first.
$11+5[(23)+10\div 2]$	After the exponent the only thing left inside the parenthesis is a simple subtraction problem.

$11+5[23+5]$	Now that we have finished our parenthesis we look at what else is left inside our brackets and notice we have division and addition so we perform our division next.
$11+5[28]$	After our division the only thing left in our brackets is a simple addition problem.
$11+140$	Now that we are complete with our brackets we look outside the brackets and notice we have multiplication and addition so we perform the multiplication next.
$11+140=151$	All that is left is a simple addition problem so we add our positive integers together. **Ans:151**

27) $\dfrac{(9-d)a+50}{e^b}$	Begin
$\dfrac{[9-(-1)](-5)+50}{10^2}$	First, let's evaluate the expression by substituting the values expressed by the letters.
Parenthesis/Brackets (inner to outer) ↓ Exponents ↓ Multiplication/Division (left to right) ↓ Addition/Subtraction (left to right) ↓	Then we need to remember our order of operations rules so we can solve for the expression the right way.
$\dfrac{10(-5)+50}{10^2}$	We notice we have division but realize we need to resolve some expressions in our numerator and denominator before we can divide. So we start at our numerator and notice there are some brackets so we work within the brackets first. We notice we are subtracting a negative number so we add the opposite.

$\frac{-50+50}{10^2}$	After we complete the brackets we notice we have multiplication and addition left in our numerator so we multiply next.
$\frac{0}{10^2}$	After our multiplication, all that is left is addition. We notice we are adding two integers with different signs but equal absolute values so when we subtract we end up with zero.
$\frac{0}{100}$	Next we perform the exponent expression in our denominator.
$\frac{0}{100}=0$	Now we can divide our two integers. We notice that we are dividing zero by a number. Since you can't divide something you don't have we end up with zero. **Ans: 0**

28) $(8-e\div b)c+16\div(a+2+1)$	Begin
$(8-10\div 2)11+16\div((-5)+2+1)$	First, let's evaluate the expression by substituting the values expressed by the letters.
Parenthesis/Brackets (inner to outer) ↓ Exponents ↓ Multiplication/Division (left to right) ↓ Addition/Subtraction (left to right) ↓	Then we need to remember our order of operations rules so we can solve for the expression the right way.
$(8-5)11+16\div((-5)+2+1)$	We notice there are a lot of expressions but also notice we have two sets of parenthesis so we will work the parenthesis first. The first parenthesis we notice we have division and subtraction so we divide first.
$(3)11+16\div((-5)+2+1)$	Next we perform our subtraction within our first parenthesis.

$(3)11+16\div(-3+1)$	Now that we are complete with our first parenthesis we move on to the next. And notice we have addition of three integers. So we perform our addition one at a time. The first two integers we are adding have different signs so we actually subtract them and keep the sign of the largest absolute value which is negative.
$(3)11+16\div(-2)$	Next we finish out the parenthesis by adding the remaining two integers. We notice we are adding two integers with different signs so we subtract them and keep the sign of the largest absolute value which is negative.
$33+16\div(-2)$	Now that we are complete with our parenthesis, we see what remains and notice we have multiplication, division and addition. So we multiply first as we go from left to right.
$33+-8$	Now that we have done our multiplication as we go from left to right we notice we perform our division next. We notice we are dividing two integers with different signs so our result will be negative.

$33+(-8)=25$	We are left with an addition problem of two integers with different signs so we subtract them and keep the sign of the largest absolute value which is positive. **Ans: 25**

29) $\dfrac{[2-3\div(b+1)+11]^2}{(-1)c+d}$	Begin
$\dfrac{[2-3\div(2+1)+11]^2}{(-1)(11)+(-1)}$	First, let's evaluate the expression by substituting the values expressed by the letters.
Parenthesis/Brackets (inner to outer) ↓ Exponents ↓ Multiplication/Division (left to right) ↓ Addition/Subtraction (left to right) ↓	Then we need to remember our order of operations rules so we can solve for the expression the right way.
$\dfrac{[2-3\div(3)+11]^2}{(-1)(11)+(-1)}$	We notice we have expressions in our numerator and in our denominator. Before we can divide them we have to work all the expressions in our numerator and denominator separately. We notice in our denominator we have brackets so we will work within the brackets first. Inside the brackets we have some parenthesis and inside the parenthesis we work the simple addition problem.

$\frac{[2-1+11]^2}{(-1)(11)+(-1)}$	Once we finish our parenthesis we see we have division, subtraction and addition remaining inside our brackets so we perform our division next.
$\frac{[1+11]^2}{(-1)(11)+(-1)}$	After our division, we have subtraction and addition left. As we go from left to right we notice we perform the subtraction next.
$\frac{12^2}{(-1)(11)+(-1)}$	After our subtraction the only thing left inside the brackets is a simple addition problem.
$\frac{144}{(-1)(11)+(-1)}$	Since we are complete with our brackets we see what is outside of the brackets and notice we have an exponent so we perform that next.
$\frac{144}{-11+(-1)}$	Now that we are complete with the numerator, we now work the numerator. We notice we have multiplication and addition so we multiply next. We are multiplying two integers with different signs so our result will be negative.
$\frac{144}{-12}$	Next we are left with an addition of two negative integers so we add the integers and place a negative sign on our answer.

$\frac{144}{-12} = -12$	Now that the expressions in our numerator and denominator have been resolved, we can now divide. Since we are dividing two integers with different signs our result will be negative. **Ans: -12**

30) $\{[(4+1)(5-a)]\div(e)(a)\}-20d$	Begin
$\{[(4+1)(5-(-5))]\div(10)(-5)\}-20(-1)$	First, let's evaluate the expression by substituting the values expressed by the letters.
Parenthesis/Brackets (inner to outer) ↓ Exponents ↓ Multiplication/Division (left to right) ↓ Addition/Subtraction (left to right) ↓	Then we need to remember our order of operations rules so we can solve for the expression the right way.
$\{[5(5-(-5))]\div(10)(-5)\}-20(-1)$	We notice there are a lot of operations that we need to perform but notice that we have some curly braces showing us that it is encompassing several expressions so we will work inside the curly braces first. Inside our curly braces we notice we have brackets so we will work inside the brackets first. Inside our brackets we have two sets of parenthesis so we will work inside the first parenthesis which is a simple addition.

$\{[(5)10] \div (10)(-5)\} - 20(-1)$	Now that we finished our first parenthesis we move on the next parenthesis that is inside our brackets. We notice that inside the parenthesis we are subtracting a negative number so we will be adding the opposite.
$\{50 \div (10)(-5)\} - 20(-1)$	We are complete with our parenthesis inside our bracket. The only thing left inside our bracket is multiplication.
$\{5(-5)\} - 20(-1)$	After the multiplication we are complete with our brackets so we have to finish everything else inside our curly braces as we work our way out. We have division and multiplication but will do division first as we go from left to right inside our curly braces.
$-25 - 20(-1)$	After our division we are left with our multiplication. Since we are multiplying integers with different signs we end up with a negative result.
$-25 - -20$	The multiplication inside the curly braces was the last item in our braces so we can work outside the braces now. We have multiplication and subtraction so we will do our multiplication next.

$-25-(-20)=-25+20=-5$	All that is left is subtraction. We notice we are subtracting a negative number so we will add the opposite. Then we notice now we are adding integers with different signs so we subtract the two and keep the sign of the largest absolute value which is negative. **Ans:-5**