BASIC ALGEBRA – Notes and Homework: DUE ON EXAM

SINGLE STEP EQUATIONS

MULTI-STEP EQUATIONS

ADDING AND SUBTRACTING FRACTIONS

MULTIPLYING AND DIVIDING FRACTIONS

MULTI-STEP FRACTION EQUATIONS

ALGEBRA REVISITED
ADDITION/SUBTRACTION   HOMEWORK   due exam day!

Solve for the given variable

1. $g - 7 = 15$	2. $t + 4 = 6$	3. $13 = m - 7$
4. $x + 3.4 = 9.1$	5. $n - \frac{3}{8} = \frac{1}{8}$	6. $p - \frac{1}{3} = \frac{2}{3}$
7. $-6 + k = 32$	8. $7 = w + 9.3$	9. $8 = r + 12$
10. $y - 57 = -40$	11. $-5.1 + b = -7.1$	12. $a + 15 = 15$

13. Marietta was given a raise of $0.75 an hour, which brought her hourly wage to $12.25. Write and solve an equation to determine Marietta's hourly wage before her raise. Show that your answer is reasonable (check your work!).

14. Brad grew 4 ¼ inches this year and is now 56 7/8 inches tall. Write and solve an equation to find Brad's height at the start of the year. Show that your answer is reasonable (check your work!).

15. Heather finished a race in 58.4 seconds, which was 2.6 seconds less than her practice time. Write and solve an equation to find Heather's practice time. Show that your answer is reasonable (check your work!).

16. The radius of Earth is 63781 km which is 2981.1 longer than the radius of Mars. Write and solve an equation to determine the radius of Mars. Show that your answer is reasonable (check your work!).

MULTIPLICATION/DIVISION   HOMEWORK   due exam day!

Solve each equation. Check your answers!   SHOW ALL WORK FOR CREDIT

1. $\frac{d}{8} = 6$	2. $-5 = \frac{n}{2}$	3. $2p = 54$
4. $-\frac{t}{2} = 12$	5. $-40 = -4x$	6. $\frac{2r}{3} = 16$
7. $-49 = 7y$	8. $-15 = -\frac{3n}{5}$	9. $9m = 6$
10. $\frac{v}{-3} = -6$	11. $28 = \frac{b}{4}$	12. $\frac{3r}{4} = \frac{1}{8}$

13. The perimeter of a regular pentagon is 41.5 cm. Write and solve an equation to determine the length of each side of the pentagon. Consider drawing a picture.

14. In June 2005, Peter mailed a package from his local post office in Fayettteville, North Carolina to a friend in Radfor, Virginia for $2.07. The first class rate at the time was $0.23 per ounce. Write and solve an equation to determine the weight of the package.

15. Lola spends one-third of her allowance on movies. She spends $8 per week at the movies. Write and solve an equation to determine Lola's weekly allowance.

MULTI-STEP EQAUTIONS   HOMEWORK   due exam day!

Do addition/subtraction first then do multiplication/division

1. $-4x + 7 = 11$	2. $17 = 5y - 3$	3. $-4 = 2p + 10$
4. $3m + 4 = 1$	5. $12.5 = 2g - 3.5$	6. $-13 = -h - 7$
7. $-6 = \frac{y}{5} + 4$	8. $\frac{7}{9} = 2n + \frac{1}{9}$	9. $-\frac{4}{5}t + \frac{2}{5} = \frac{2}{3}$
10. $-(x - 10) = 7$	11. $-2(b + 5) = -6$	12. $8 = 4(q - 2) + 4$

Evaluating an equation: Solve the first equation for the variable...then use that answer in place of the variable in the second equation

13. If $3x - 8 = -2$, find the value of $x - 6$

14. If $-2(3y + 5) = -4$, find the value of $5y$

15. The two angles shown from a right angle. Write and solve an equation to find the value of x.

$(3x - 5)^o$ $(2x)^o$
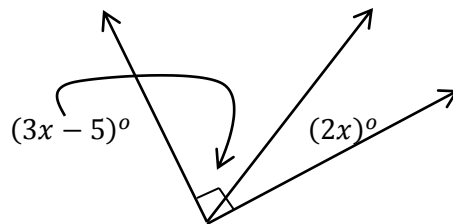
16. For her cellular phone service, Vera pays $32 a month plus $0.75 for each minute over the allowed minutes in her plan. Vera received a bill for $47 last month. For how many minutes did she use her phone beyond the allowed minutes?

Equations with variables on both sides – Preliminary systems of equations
Homework   Due Exam Day!

Show work on a separate piece of paper as there may not be enough room.

1. $3d + 8 = 2d - 17$	2. $2n - 7 = 5n - 10$	3. $p - 15 = 13 - 6p$
4. $-t + 5 = t - 19$	5. $15x - 10 = -9x + 2$	6. $1.8r + 9 = -5.7r - 6$
7. $2y + 3 = 3(y + 7)$	8. $4n + 6 - 2n = 2(n + 3)$	9. $6m - 8 = 2 + 9m - 1$
10. $-v + 5 + 6v = 1 + 5v + 3$	11. $2(3b - 4) = 8b - 11$	12. $5(r - 1) = 2(r - 4) - 6$

The breakeven point is when two situations are equal. For example for a certain number of toppings both pizza places will charge the same price. Or for a certain number of miles both taxi cab companies will charge the same amount. Graphically, it is the intersection point of two lines. When using equations, it is when you set the two equations equal to each other and solve for the variable.

13. Janine has job offers at two companies. One company offers a starting salary of $28,000 with a raise of $3000 each year. The other company offers a starting salary of $36,000 with a raise of $2000 each year.

a. After how many years would Janine's salary be the same with both companies?

b. What would that salary be?

14. Xian and his cousin both collect stamps. Xian has 56 stamps, and his cousin has 80 stamps. Both have recently joined different stamp-collecting clubs. Xian's club will send him 12 new stamps per month, and his cousin's club will send him 8 new stamps per month.

a. After many months will Xian and his cousin have the same number of stamps?

b. How many stamps will that be?