

Board (Word) Problems (Teach the first 8 problems!)

Board Images **with** Algebraic Set Ups have been created **as answers** for the top WPs 1-8 & class instruction. It is **essential** for teachers and/or students **not to skip** these basic word problems **since** they create visual images. Because they **seem** so easy, it is normal to dismiss them **but** they play a major role in solving more difficult WPs!

1. A sixteen ft board is cut into two pieces. The two pieces of board are the same in length. How long is each piece?
2. A seventeen ft board is cut into two pieces. One piece is 3 feet more than the other piece. How long is each piece?
3. An eighteen ft board is cut into two pieces. One piece is twice the other piece. Determine length of each piece?
4. A nineteen ft board is cut into two pieces. One piece is four more than twice other piece. How long is each piece?
5. A twenty ft board is cut into two pieces. The two pieces of board are the same in length. How long is each piece?
6. A seventeen ft board is cut into two pieces. One piece is five feet less than other piece. How long is each piece?
7. A sixteen ft board is cut into two pieces. One piece is three-fifths the other piece. How long is each piece?
8. A twelve ft board is cut into two pieces. One piece is three less than half other piece. How long is each piece?

Board (Word) Problems (Assign HW for last 8 problems!)

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1. An eighteen ft board is cut into two pieces. The two pieces of board are equal in length. How long is each piece?
2. A seventeen ft board is cut into two pieces. One piece is five feet more than other piece. How long is each piece?
3. A sixteen ft board is cut into two pieces. One piece is three times the other piece. Determine length of each piece?
4. A thirteen ft board is cut into two pieces. One piece is one more than triple other piece. How long is each piece?
5. A twelve ft board is cut into two pieces. The two pieces of board are equal in length. How long is each piece?
6. A seventeen ft board is cut into two pieces. One piece is three feet less than other piece. How long is each piece?
7. A fifteen ft board is cut into two pieces. One piece is two-thirds the other piece. How long is each piece?
8. A fourteen ft board is cut into two pieces. One piece is two less than one-third other piece. How long is each piece?

Real World Problems (Teach the first 8 problems!)

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1. Together a watch & ring set cost \$25.00. The watch is four more than twice the ring. How much does each cost?
2. Sue & Pete caught 20 catfish. Sue caught four less than three times as many as Pete. How many did each catch?
3. Together a chair and desk cost \$55.00. The chair cost one less than one-third the chair. How much does each cost?
4. Mary and Tom made thirty-five cookies. Mary made five more than half as many as Tom. How many did each make?
5. Together Nick & Harry weight 315 lbs. Harry weights fifteen pounds more than Nick. How much does each weight?
6. The total coast of a shirt & tie cost \$26.00. The shirt is eight less than the price of the tie. How much does each cost?
7. Together Sally & Linda have 161 bonus points. Linda has three-fourth as many as Sally. How many does each have?
8. The total cost for a baseball ball & glove is \$45.00. The ball is two-thirds the glove. What is cost of ball & glove?

Real World Problems (Assign HW for last 8 problems!)

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1. Together a watch & ring set cost \$25.00. The watch is four more than twice the ring. How much does each cost?
2. Helen & Joe picked 22 McIntosh apples. Joe picked six less than three-fourths as Helen. How many did each pick?
3. Brenda & Jim made 23 sugar cookies. Jim made two more than half than Brenda. How many did each make?
4. Together a scarf & coat cost \$39.00. The scarf is one less than 1/4 the coat. How much does scarf & coat cost?
5. Together Joe & Dave have 117 model cars. Dave has 41 more cars than John. How many cars does each have?
6. The total coast of a shirt & pants cost \$30.00. The shirt is 2/3 the price of the pants. How much does each cost?
7. Together Lynn & Marge have 184 movie star cards. Marge has 3/5 as many as Lynn. How much does each have?
8. The total cost for a baseball bat and ball is \$19.00. The ball is one less than the bat. Determine cost of ball & bat?

Angle (Word) Problems (Teach the first 8 problems!)

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1. Two complementary angles are such that one is fourteen more than $\frac{1}{3}$ the other. Determine value of each angle.
2. Two supplementary angles are such that one is thirty-three less than $\frac{1}{2}$ the other. Determine value of each angle.
3. Two adjacent angles equal forty-two degrees. One is three less than twice smaller. Determine value of each angle.
4. Angles of a triangle are such one is twice another while a third is 12 less than smaller. Determine value of each angle.
5. One complementary angle is nine less than half the other complementary angle. What is value of each angle?
6. One supplementary angle is twenty-four less than half the other supplementary angle. What is value of each angle?
7. Two adjacent angles equal eighty-two degrees. One is two more than $\frac{2}{3}$ other angle. What is value of each angle.
8. Angles of a triangle are such one is half another while a third is 20 more than larger. What is value of each angle?

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1. Two complementary angles are such that one is 5 more than $\frac{2}{3}$ the other. What is each complementary angle?
2. Two supplementary angles are such that one is 26 less than the other. What is each supplementary angle?
3. Two adjacent angles equal eighty degrees. One is one-fourth the other angle. How much is each adjacent angle?
4. The angles of a triangle are such one is $\frac{1}{3}$ another while a third is 5 less than smaller. How much is each angle?
5. An angle is three-sevenths of its complement angle to the first angle. Determine value of each complementary angle.
6. An angle is sixteen less than its supplement angle to the first angle. Determine value of each supplementary angle.
7. An adjacent angle is two less than three-fourth the other adjacent angle. Determine value of each adjacent angle.
8. Angles of a triangle are such one is $\frac{2}{3}$ another while the third is twelve more than larger. Determine value of angles.

Perimeter (Word) Problems (Teach the first 8 problems!)

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1. A perimeter of an isosceles triangle is 26 ft. The sides are 7 feet more than half the base. How long are sides?
2. A scalene triangle perimeter is 33 ft. One side is $\frac{1}{2}$ larger & another is 5 more than smaller. How long are sides?
3. A perimeter of an isosceles triangle is 18 ft. The base is two less than three times either side. How long is sides?
4. A scalene triangle perimeter is 21 ft. One side is twice smaller & another is 9 less than larger. How long are sides?
5. The perimeter of a rectangle is 36 ft. One length is three more than twice the width. Determine length and width?
6. The width of a rectangle is six less than $\frac{1}{3}$ length. The perimeter is fifty-two feet. Determine length and width?
7. The perimeter of a rectangle is 44 ft. The width is four more than half the length. Determine length and width?
8. The length of a rectangle is two less than three times width. The perimeter is 68 feet. Determine length and width?

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1. Perimeter of an isosceles triangle is 22 ft. The sides are three feet more than half the base. How long is each side?
2. A scalene triangle perimeter is 17 ft. One side is $\frac{1}{3}$ largest & another is 3 less than smaller. How long are sides?
3. Perimeter of an isosceles triangle is 25 ft. The base is one more than twice either of the sides. How long are sides?
4. A scalene triangle perimeter is 19 ft. One side is twice smaller & another is 4 more than larger. How long are sides?
5. The perimeter of a rectangle is 44 ft. The length is two less than three the width. Determine the length and width.
6. The width of a rectangle is one less than $\frac{1}{2}$ the length. The perimeter is 58 feet. Determine the length and width.
7. The perimeter of a rectangle is 64 ft. The width is three less than $\frac{2}{3}$ the length. Determine the length and width.
8. The length of a rectangle is four times the width. The perimeter is 50 feet. Determine the length and width.

Number (Word) Problems (Teach the first 8 problems!)

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1. The sum of two numbers is eleven. One number is two more than twice the other number. Determine the numbers.
2. The difference of two numbers is eight. The larger is two less than triple the smaller. Determine the numbers.
3. The product of two numbers is thirty-two. One number is half the other number. Determine each of the numbers.
4. The quotient of two numbers is $\frac{2}{3}$. The larger is four more than the smaller. Determine each of the numbers.
5. One number is three more than half another. Together the numbers equal twelve. What are the numbers?
6. The larger of two numbers is five less than four times the smaller. They differ by 34. What are the numbers?
7. One number is twice another number. The product of the numbers is ninety-eight. What are the numbers?
8. The smaller of two numbers is two less than the larger. Their quotient is five-thirds. What are the numbers?

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1. The sum of two numbers is fifteen. One number is one less than $\frac{1}{3}$ the other number. Determine the numbers.
2. The difference of two numbers is nine. The larger is three more than twice the smaller. Determine the numbers.
3. The product of two numbers is seventy-five. The larger is triple the smaller. Determine each of the numbers.
4. The quotient of two numbers is $\frac{3}{4}$. The larger is three more than the smaller. Determine each of the numbers.
5. One number is four more than one-third another. Together the numbers equal twenty. What are the numbers?
6. The larger of two numbers is five more than four times the smaller. They differ by 17. What are the numbers?
7. One number is one-fourth another number. The product of the numbers is thirty-six. What are the numbers?
8. The larger of two numbers is three more than the smaller. Their quotient is six-fifths. What are the numbers?

Consecutive Integer (Word) Problems (Teach the first 8 problems!)

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1. The sum of three (Normal) consecutive integers is twenty-one. Determine the value of each integer.
2. The sum of three (Odd) consecutive integers is thirty-nine. Determine the value of each integer.
3. The sum of three (Normal) consecutive integers is forty-two. Determine the value of each integer.
4. The sum of three (Even) consecutive integers is seventy-two. Determine the value of each integer.
5. Determine four consecutive integers such that the sum of the second & fourth integers is twenty-two.
6. Determine four consecutive (Odd) integers such that the sum of the first and third is twenty-two.
7. Determine three consecutive integers such that the sum of the first and third negative twenty-four.
8. Determine three consecutive (Even) integers such that the sum of the second and third negative ten.

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1. The sum of three (Normal) consecutive integers is forty-eight. Determine the value of each integer.
2. The sum of three (Odd) consecutive integers is twenty-one. Determine the value of each integer.
3. The sum of three (Normal) consecutive integers is fifty-four. Determine the value of each integer.
4. The sum of three (Even) consecutive integers is forty-two. Determine the value of each integer.
5. Determine four consecutive integers such that the sum of the first and fourth integers is fifteen.
6. Determine four consecutive (Even) integers such that the sum of the second and third is fourteen.
7. Determine three consecutive integers such that the sum of the first and second negative twenty-one.
8. Determine three consecutive (Odd) integers such that the sum of the second and third negative eight.

Ratio, Proportion & Percent (Word) Problems (Teach the first 8 problems!)

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1. A student got seven questions wrong on a thirty-five question social studies test. What percent right did student get?
2. The price of gold on the stock market went from \$480/ounce to \$530/ounce. What is the percent of increase?
3. The measurement of a length yields 25.2 cm while true measurement was 26.5 cm. What is the percent of error?
4. The measurement of a mass yields 450.8 grams but true mass was 420.6 grams. What is the percent of error?
5. A World History class of 25 students has a ratio of guys to girls equal to 2:3. Determine how many guys & girls in class.
6. A chemical substance has an extended ratio of 2:5:7 with a total mass of 168 grams. Determine mass of components.
7. The ratio of stone to dirt obtained from a mining site yielded a ratio of 1:10. Find amount of stone & dirt in 33 tons.
8. In any specific day, the suggested time spent reading to watching TV is 1:2. Find amount of time for each in one day.

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1. A student got nine questions wrong on a forty-five question social studies test. What percent right did student get?
2. The price of gold on the stock market went from \$450/ounce to \$405/ounce. What is the percent of decrease?
3. The measurement of a weight yields 262.5 lbs while true measurement was 250 lbs. What is the percent of error?
4. Students measured a height of an object to be 450 feet but true height was 480 feet. What is the percent of error?
5. An American History class of 35 students has a ratio of girls to guys to be 4:3. How many guys & girls are in class?
6. A biological substance has an extended ratio of 3:4:8 with total volume of 240 liters. Determine mass of components.
7. Ratio of cocoa to caffeine in a chocolate yielded a ratio of 6:2. Determine amount of cocoa & caffeine in 2 pounds.
8. In any specific day, the suggested time spent sleeping to exercising is 3:1. Find amount of time for each in one day.

Money & Business & Finance (Word) Problems (Teach the first 8 problems!)

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1. A 40 hour sub-minimal job at \$4.50 per hour and 5 hours standard overtime rate. What is worker's **gross** pay?
2. A 40 hour sub-minimal job at \$6.25 per hour and no overtime but 25% deductions. What is worker's **net** pay?
3. What is the total amount of a sale? A customer bought an assortment of clothing for \$35.00 with 6% sales tax.
4. What is property tax on a market value of \$60,000? The tax rate of 5% is expected on (1/2) of the market value.
5. A Panda Bear meal for a couple was \$38.50 with expected tip at 15%. What is cost of meal with tip included?
6. A store has a wholesale book price at \$32.50 and retails it for \$50. What is percent of mark up for the book?
7. What will an employee pay for a purchase of \$75? Employees receive a 20% discount on purchase of goods.
8. What is percent of mark down for the items? In a store specific items are discounted from \$14.50 to \$12.25.

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1. A 40 hour sub-minimal job at \$5.50 per hour and 3 hours standard overtime rate. What is worker's **gross** pay?
2. A 40 hour sub-minimal job at \$3.25 per hour and no overtime but 25% deductions. What is worker's **net** pay?
3. What is the total amount of a sale? A customer bought an assortment of clothing for \$66.00 with 5% sales tax.
4. What is property tax on a market value of \$75,000? The tax rate of 6% is expected on (1/2) of the market value
5. A Panda Bear meal for a couple was \$42.75 with expected tip at 15%. What is cost of meal with tip included?
6. A store has a wholesale book price at \$35.00 and retails it for \$50. What is percent of mark up for the book?
7. What will an employee pay for a purchase of \$55? Employees receive a 20% discount on purchase of goods.
8. What is percent of mark down for the items? In a store specific items are discounted from \$18.50 to \$13.75.

Work & Age (Word) Problems (Teach the first 8 problems!)

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1. Joan does a job in 6 days while Sam does same job in 8 days. How long to do the job when they work together?
2. Bill does a job in 5 hours. Together with Sue the job takes 2 hours? How long will it take Sue to do the job alone?
3. Pete takes twice as long to do a job as Joe. Together the job takes 3 hours. How long will it take each one alone?
4. Jane takes $\frac{2}{3}$ as long to do a job as Sue. Together the job takes 4 hours. How long will it take Jane to do the job?
5. Tim is $\frac{1}{4}$ as old as Sue. Eight years from now, Sue will be 18 years older than Tim. How old is Tim & Sue today?
6. Mike is three times as old as Pam. Five years ago, Mike was be 14 years younger than Pam. How old were they then?
7. Ann is 15 yrs older than Jim. Ten years from now, Ann will be twice as old as Jim. How old is Ann & Mike in 10 yrs?
8. Fred is one & a half times as old Jan. Eight years ago, Jan will be half as old as Fred. How old was Fred & Jan then?

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1. Joan does a job in 7 days while Sam does same job in 9 days. How long to do the job when they work together?
2. Bill does a job in 8 hours. Together with Sue the job takes 3 hours? How long will it take Sue to do the job alone?
3. Pete takes half as long to do a job as Joe. Together the job takes 4 hours. How long will it take each one alone?
4. Jane takes $\frac{3}{4}$ as long to do a job as Sue. Together the job takes 6 hours. How long will it take Jane to do the job?
5. Tim is $\frac{1}{3}$ as old as Sue. Five years from now, Sue will be 12 years older than Tim. How old is Tim & Sue today?
6. Mike is twice as old as Pam. Three years ago, Mike was be 10 years younger than Pam. How old were they then?
7. Ann is 12 yrs older than Jim. Five years from now, Ann will be half as old as Jim. How old is Ann & Mike in 5 yrs?
8. Fred is two & a half times as old Jan. Two years ago, Jan will be half as old as Fred. How old was Fred & Jan then?

Distance (Word) Problems (Teach the first 8 problems!)

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1. Two boats traveled for 3 hrs to go 129 miles in the opposite direction. Boat W travels 9 mph faster than Boat Z.
Create a image for opposite direction problem with all parts. Determine the distance traveled for each boat.
2. Two planes are 200 miles apart, head towards each other at 50 mph. Plane G traveled for 3 hours less than Plane H.
Create a image for this approach problem with all parts and determine the distance each plane traveled.
3. A slow train leaving a 5 AM and traveling at 30 mph is overtaken by a faster train leaving at 8 AM traveling at 40 mph.
Create a image for this overtake problem with all parts and determine distance traveled to be overtaken.
4. A walk at 4 mph is slow compared to a bike ride back at 16 mph. The entire round trip for walk & ride took 30 minutes.
Create a image for this roundtrip problem with all parts and determine the distance for entire round trip.
5. Two Crows traveled 85 miles in opposite directions at speeds 15 & 20 mph. Crow A traveled 1 hr longer than Crow B.
Create a image for this opposite problem with all parts and determine the distance traveled by each bird.
6. Two meteors traveled 175,000 miles in 5 minutes at each other, Meteor X travels two-thirds as fast as Meteor Y?
Create a image for this approach problem with all parts and determine the speed for each meteor.
7. A slow train travels for 4 hours then another train overtakes it in 1 hour. Trains have a difference in speed by 15 mph.
Create a image for this overtake problem with all parts and determine the distance to be overtaken.
8. A car trip at 30 mph is fast compared to a return bike trip at 15 mph. The entire round trip for car and bike took 3 hours.
Create a image for this roundtrip problem with all parts and determine the distance of the entire round trip.

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1. Two boats traveled for 4 hrs to go 225 miles in the opposite direction. Boat W travels 12 mph faster than Boat Z.
Create a image for opposite direction problem with all parts. Determine the distance traveled for each boat.
2. Two planes are 300 miles apart, head towards each other at 65 mph. Plane G traveled for 2 hours less than Plane H.
Create a image for this approach problem with all parts and determine the distance each plane traveled.
3. A slow train leaving a 3 AM and traveling at 35 mph is overtaken by a faster train leaving at 5 AM traveling at 55 mph.
Create a image for this overtake problem with all parts and determine distance traveled to be overtaken.
4. A walk at 3 mph is slow compared to a bike ride back at 12 mph. The entire round trip for walk & ride took 20 minutes.
Create a image for this roundtrip problem with all parts and determine the distance for entire round trip.
5. Two Crows traveled 65 miles in opposite directions at speeds 12 & 18 mph. Crow A traveled 2 hrs longer than Crow B.
Create a image for this opposite problem with all parts and determine the distance traveled by each bird.
6. Two meteors traveled 215,000 miles in 8 minutes at each other, Meteor X travels three-fourths as fast as Meteor Y?
Create a image for this approach problem with all parts and determine the speed for each meteor.
7. A slow train travels for 5 hours then another train overtakes it in 2 hour. Trains have a difference in speed by 25 mph.
Create a image for this overtake problem with all parts and determine the distance to be overtaken.
8. A car trip at 40 mph is fast compared to a return bike trip at 12 mph. The entire round trip for car and bike took 4 hours.
Create a image for this roundtrip problem with all parts and determine the distance of the entire round trip.

Mixture & Solution (Word) Problems (Teach the first 8 problems!)

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@ Students need to know the dollar (\$) sign goes in front while the cent (¢) symbol goes to the back! @

1. A small purse of nickels and quarters has a total value of \$2.40. There three times as many quarters as nickels.
Create a image for this mixture problem with all parts and determine how many quarters & nickels.
2. A group of cashews at \$4.50/pound is mixed with half as many pecans at \$3.50/pound. Mixture sells for \$6.25.
Create a image for this mixture problem with all parts and determine how many cashews & pecans.
3. A collection of thirty coins containing quarters and nickels, have a face value of \$5.50 (means only \$.25 & \$.05)
Create a image for this mixture problem with all parts and determine how many quarters & nickels.
4. An elementary school ball game sells 280 adult and student tickets at \$1.50 and \$.50. Total receipts = \$240.00.
Create a image for this mixture problem with all parts and determine how many adult & student tickets.
5. A portion of an 80% chemical solution is mixed with 2 liters of a 30% chemical solution to form a 40% solution.
Create a image for this solution problem with all parts and determine how much of 80% solution used.
6. A portion of a 20% colored liquid is mixed with 5 liters of a 70% colored liquid to form a 60% colored liquid.
Create a image for this solution problem with all parts and determine how much of 20% solution used.
7. A 40% weaker solution is created when three liters of a 60% stronger solution is diluted by adding water.
Create a image for this solution problem with all parts and determine how much water was added.
8. A 60% solution is created when six liters of a 25% solution is strengthened by a pure solution. Think *Antifreeze!*
Create a image for this solution problem with all parts and determine how much pure solution is used.

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1. A collection of old stamps \$.25 & \$.08 has a total value of \$9.00. There half as many \$.25 stamps as \$.08.
Create a image for this mixture problem with all parts and determine how many of \$.25 & \$.08 stamps.
2. A selection of coins containing dimes and nickels, have a face value of \$3.25 (meaning only \$.10 & \$.05 values)
Create a image for this mixture problem with all parts and determine how many \$.10 & \$.05 each.
3. Soft & hard candy in a 4 pound bag of sells for \$18.25. Soft candy sells at \$3.75/lb & hard candy sells at \$2.25/lb.
Create a image for this mixture problem with all parts and determine how much of soft & hard in bag.
4. Thirty-six coins containing dimes and quarters have a face value of \$8.20. (meaning only \$.10 & \$.25 values)
Create a image for this mixture problem with all parts and determine how many \$.10 & \$.25 each.
5. A portion of a 70% chemical solution is mixed with 3 liters of a 20% chemical solution to form a 50% solution.
Create a image for this solution problem with all parts and determine how much of 70% solution used.
6. A portion of a 10% colored liquid is mixed with 5 liters of a 60% colored liquid to form a 40% colored liquid.
Create a image for this solution problem with all parts and determine how much of 10% solution used.
7. A 50% weaker solution is created when eight liters of an 80% stronger solution is diluted by adding water.
Create a image for this solution problem with all parts and determine how much water was added.
8. A 50% solution is created when four liters of a 25% solution is strengthened by a pure solution. Think *Antifreeze!*
Create a image for this solution problem with all parts and determine how much pure solution is used.

Direct & Inverse (Word) Problems (Teach the first 8 problems!)

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1. A coal mine yields 460 tons of coal every 2 days. Coal mine consistently yields 460 tons of coal every 2 days.
Create a image for this relation problem as a *proportion* and determine how many tons of coal in 5 days?
2. A water pump ejects 650 gallons every 3 hours. Water pump consistently ejects out 650 gallons every 3 hours.
Create a image for this relation problem as a *proportion* and determine how long to eject 325 gallons?
3. A forty-eight mile trip takes 30 minutes. Obviously, this trip was done in a small air plane with an average speed.
Create a image for this relation problem as a *proportion* and how long is a 72 mile trip at same speed?
4. A two carat diamond costs \$1800. Actually, this is a good buy since a 2 carat diamond today sells at \$6,000.
Create a image for this relation problem as a *proportion* and how is a similar diamond of 2/3 carats?
5. A vacation trip takes 8 hours at an average speed of 45 mph. The trip was taken in a good shape Jeep Wrangler.
Create a image for this relation problem as a *proportion* and determine time for same distance at 60 mph?
6. A balanced teeter tooter has 105 pounds at 4.4 feet on one side. The teeter tooter is balanced meaning it is level.
Create a image for this relation problem as a *proportion* and determine pounds on other side at 5 feet?
7. A forty-two cubic feet balloon experiences an outside pressure of 34 PSI. Mostly psi is given at sea level is 14.5 psi.
Create a image for this relation problem as a *proportion* and determine volume at same altitude for 28 psi?
8. An eight inch pulley turning at 125 rpm drives a 5 inch pulley. *Some* think they would be turning at same rpm?
Create a image for this relation problem as a *proportion* and determine the rpm for the 5 inch pulley?

Direct & Inverse (Word) Problems (Assign HW for last 8 problems!)

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1. A copper mine yields 400 tons of copper in 3 days. The coal mine consistently produces 400 tons of coal in 3 days.
Create a image of this relation problem as a *proportion*. Determine how many days to produce 650 tons?
2. A sump pump ejects 230 gallons every 2 hours. The sump pump consistently ejects out 230 gallons every 2 hours.
Create a image of this relation problem as a *proportion*. Determine how many gallons ejected in 7 hours?
3. A sixty mile trip takes 2 hours. Obviously, this trip was done in a small piper cub airplane with an average speed.
Create a image of this relation problem as a *proportion*. How many hrs for a 132 mile trip at same speed?
4. A three carat diamond costs \$2400. Actually, this is a very good buy since a good diamond today sells at \$6,000.
Create a image of this relation problem as a *proportion*. How many carats for \$600 at initial stated rate?
5. A business trip takes 4 hrs at an average speed of 55 mph. Trip was taken on a back road but expressway is faster.
Create a image of this relation problem as a *proportion*. Determine time for same distance at 75 mph?
6. A balanced teeter tooter has 160 pounds at 2.5 feet on one side. The teeter tooter is balanced meaning; it is level.
Create a image of this relation problem as a *proportion*. Determine distance on other side at 120 pounds?
7. A forty-two cubic feet balloon experiences an outside pressure of 105 PSI. Mostly psi is given at sea level is 14.5 psi.
Create a image of this relation problem as a *proportion*. Determine volume at same altitude for 40 psi?
8. A seven inch pulley turning at 80 rpm drives a 16 inch pulley. *Some* think pulleys would be turning at same rpm?
Create a image of this relation problem as a *proportion*. Determine the rpm for the 16 inch pulley?

Two Variable (Word) Problems (Teach the first 8 problems!)

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1. At a men's store three shirts and two ties cost \$69 while two shirts and 4 ties cost \$66. Yes, it is a Wal-Mart store.
Create a image for this relation problem as a (Use S & T) and determine the cost of the shirts & ties?
2. During the summer 6 tomatoes & 2 melons cost \$4.40 while 4 tomatoes & 4 melons cost \$6.40 at a road side stand.
Create a image for this relation problem as a (Use T & M) and determine the cost of tomatoes & melons?
3. A sack of bills contains only \$5 and \$10 . There are twice as many \$5 as \$10 while there are 3 less \$10 than \$5.
Create a image for this relation problem as a (Use F & T) and determine how many \$5 and \$10 in sack?
4. A bowl contains red and white marbles. There is $\frac{1}{3}$ as many red as white while there are two more white than red.
Create a image for this relation problem as a (Use R & W) and determine how many red & white marbles?
5. A product of two numbers is forty-five. The larger number is one less than twice the smaller number.
Create a image for this relation problem as a (Use L & S) and determine the larger and smaller numbers?
6. The sum of the squares of two numbers is 13. The smaller number is one less than the larger number.
Create a image for this relation problem as a (Use L & S) and determine the larger and smaller numbers?
7. A larger number exceeds a smaller number by four. The smaller number is two more than one-third the larger number.
Create a image for this relation problem as a (Use L & S) and determine the larger and smaller numbers?
8. A sum of a smaller and larger number is thirteen. The product of the two numbers is thirty-six.
Create a image for this relation problem as a (Use L & S) and determine the larger and smaller numbers?

Two Variable (Word) Problems (Assign HW for last 8 problems!)

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1. At a discount store 3 cut offs and 4 socks cost \$36.50 while 2 cut offs and 1 sock cost \$66. Yes, it is Dollar General.
Create a visual image of this relation problem as a (Use S & T). Determine the cost of the cut offs & socks?
2. During the fall 12 apples and 4 oranges cost \$3.80 while 8 apples and 2 oranges cost \$2.40 at a road side stand.
Create a visual image of this relation problem as a (Use T & M). Determine the cost of apples & oranges?
3. A bag of bills \$1 and \$5 denominations. There are half as many \$5 as \$1 while there is 4 more \$1 than \$5.
Create a visual image of this relation problem as a (Use F & T). Determine how many \$1 and \$5 in bag?
4. A bowl contains blue and yellow marbles. There is $\frac{3}{4}$ as many blue as yellow & there are two more yellow than blue.
Create a visual image of this relation problem as a (Use R & W). Determine how many blue & yellow marbles?
5. A product of two numbers is twenty-four. The larger number is two more than the smaller number.
Create a visual image for this relation problem as a (Use L & S) and determine the larger and smaller numbers?
6. The sum of the squares of two numbers is 74. The smaller number is two less than the larger number.
Create a visual image for this relation problem as a (Use L & S) and determine the larger and smaller numbers?
7. A larger number exceeds a smaller number by five. The larger number is one more than three times smaller number.
Create a visual image for this relation problem as a (Use L & S) and determine the larger and smaller numbers?
8. A sum of a smaller and larger number is eleven. The product of the two numbers is twenty-four.
Create a visual image for this relation problem as a (Use L & S) and determine the larger and smaller numbers?

Motion & Digit (Word) Problems (Teach the first 8 problems!)

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1. A 12 mile trip takes 2 hours upstream while 1 hour downstream.
Determine river current and boat speed in still water.
2. A 180 mile flight takes $\frac{2}{3}$ hour against wind. Three times this distance takes 1.5 hours with the wind. Wind & plane speed?
3. A plane takes $\frac{1}{2}$ hour to fly 30 miles with the wind while 10 minutes to fly 12 miles against the wind. Wind & plane speed?
4. A boat travels 6 miles in one hour upstream while 3 miles downstream in 15 minutes. River current & boat speed?
5. The sum of the digits of a two digit number is ten.
The tens digit is four more than twice the units digit.
6. The units digit is six more than the tens digit.
The sum of the number and its digits is twenty-five.
7. The sum of digits of a two digit number is six. Interchange the digits (tens & units) and the new number is 18 less than the old number.
8. The tens digit is half the units digit. Interchange the digits (tens & units) and the new number is 9 more than the old number.

Motion & Digit (Word) Problems (Assign HW for last 8 problems!)

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1. A 16 mile trip takes $\frac{8}{5}$ hours upstream while 1 hour downstream.
Determine river current and boat speed in still water.
2. A 625 mile flight takes 2.5 hours against wind while 225 miles in $\frac{3}{4}$ of an hour with the wind. Wind & plane speed?
3. A plane takes three hours to fly 240 miles with the wind while two hours to fly 80 miles against wind. Wind & plane speed?
4. A boat travels 36 miles in two hours upstream while 16 miles downstream in same time. River current & boat speed?
5. The sum of the digits of a two digit number is eight.
The units digit is two less than the tens digit.
6. The units digit is three less than the tens digit.
The difference between the number and its digits is 36.
7. The sum of the digits of a two digit number is eight. Interchange the digits (tens & units) and the old number is 16 more than twice new number.
8. The tens digit is one-third the units digit. Interchange the digits (tens & units) and the new number 4 more than twice old number.

Maximum Value & Area (Word) Problems (Teach the first 8 problems!)

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1. Determine the maximum product of two numbers that can be generated by multiplying twice a number and twelve minus the number.
2. An arrow is shot into the air at 48m/s. Its path is described by $(H = -6T^2 + VT)$. Determine maximum height for arrow and total time of flight.
3. A three sided playpen alongside a house uses 40 feet of fence. Determine the length and width *then* maximum area.
4. At \$3 per ticket 600 students attend a school show. *Increasing* tickets by 10¢ *decreases* attendance by 30. Determine max attendance.
5. The area of a triangle is fourteen sq. ft. and the height is 3 more than base. Determine the length of the base and height of triangle.
6. The base of a triangle is $(1/3)$ the height. The area equals sixteen sq. ft. Determine the length of the base and height of triangle.
7. The width of a rectangle is three less than half the length. The area is fifty-six sq. ft. Determine the length and width *then* the perimeter.
8. The area of a rectangle is sixty-five sq. ft. The length is two less than three times the width. Determine the length and width *then* the perimeter.

Maximum Value & Area (Word) Problems (Assign HW for last 8 problems!)

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1. Determine the maximum product of two numbers that can be generated by multiplying three times a number and eight minus the number.
2. An arrow is shot into the air at an angle at 40m/s. Its path is described by $(H = -6T^2 + VT)$. Determine maximum height and time.
3. A three sided beach area next to a lake uses 160 feet of fence. Determine the length and width then maximum area.
4. Thirty bushes per box yields 100 nuts per bush. Increasing bushes per box by (1) decreases nuts per bush by (2). Determine max nuts per bush.
5. The area of a triangle is twelve sq. ft. The base is two less than the height. Determine the length of the base and height.
6. The height of the triangle is three-fourths the base. The area is twenty-four sq. ft. Determine the length of the base and height.
7. The length of a rectangle is one more than twice the width. the area is thirty-six Determine the length and width *then* the perimeter.
8. The area of a rectangle is seventy-two sq. ft. Width is two less than one-third length. Determine the length and width *then* the perimeter.

Volume & Area (Word) Problems (Teach the first 8 problems!)

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1. The area of a circle is 33TT less than a circle with a radius one less than twice the first circle.
Determine areas of the two circles.
2. The length of a rectangle is twice the width. Increasing length by (3) increases area by (15).
Determine the areas of the two rectangles.
3. The radius of one sphere is half another sphere. The smaller sphere has a volume (7/48TT) less than the larger sphere. Determine volumes of both spheres.
4. The sides of a cube are increased by (2). The new volume is 98 more than old cube.
Determine volumes of both cubes.
5. The radius of one circle is one more than half another.
The larger area is (95tt) more than smaller area. Determine both areas.
6. The width of a rectangle is (1/3) the length. Decreasing width by (2) decreases area by (42).
Determine new and old areas of the rectangles.
7. A cylinder's radius is twice its height. Increasing height by (2) increases volume by (8TT).
Determine new and old volumes of the cylinders.
8. The sides of two cubes have ratios of 1:2:3 **and** 1:1:3 while their volumes differ by 24.
Determine both volumes of the two cubes.

Maximum Value & Area (Word) Problems (Assign HW for last 8 problems!)

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1. The area of a circle is 63TT more than a circle with a radius of (3) more than half first circle.
Determine areas of the two circles.
2. The width of a rectangle is half the length. Decreasing width by (1) decreases area by (8).
Determine the areas of the two rectangles.
3. The radi of two spheres has a ratio of 2:3. The larger sphere has a volume (736/3TT) more than the smaller sphere. Determine volumes of both spheres.
4. The sides of a cube are increased by (1). The new volume is 91 more than old volume.
Determine volumes of both cubes.
5. Radii of two circles has a ratio of 5:3. The larger circle is (4TT) more than smaller area.
Determine areas both circles.
6. The length of a rectangle is (2) width. Increasing each side by (1) causes area to Inc by (17).
Determine new and old areas of the rectangles.
7. A cylinder's radius is (1/3) its height. Decreasing radius by (1) decreases volume by (18TT).
Determine new and old volumes of the cylinders.
8. The sides of two cubes have ratios of 1:3:4 **and** 1:1:3 while their volumes differ by(9).
Determine both volumes of the two cubes.