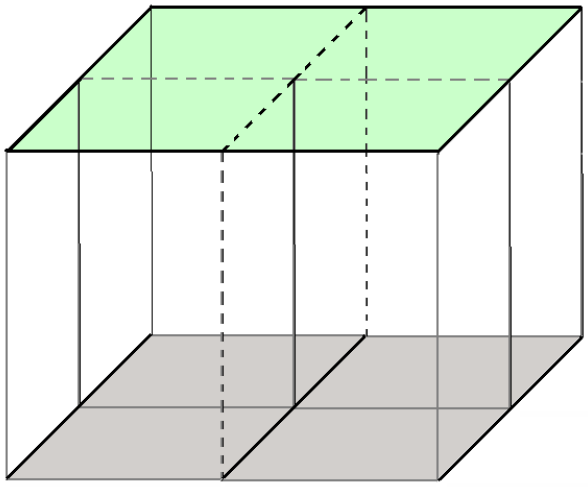
Chapter 4 -Calculating Net Mineral Ownership

When more than one person owns a mineral interest in the same tract of land, it can be said that each own an undivided interest in the entire tract. The land professional must be able to calculate the exact net ownership of each person.



In the illustration, there are four square acres of surface and subsurface acres.

Problem 1:

If Tom owned an undivided 25% of the subsurface minerals, how many net mineral acres would he own?

_____

Since he owns an undivided 25% of every acre he would own 4 acres X 0.25 = 1 net mineral acre.

Problem 2:

If Jake owned an undivided 1/8th interest in the subsurface minerals, how many net mineral acres would he own? _____

1/8th is the same as 12.5%. (1 divided by 8 = 12.5%). 4 acres X 0.125 = .500 mineral acres.

If Jake sold 25% of his .500 mineral acres to his brother Jimmy, how many mineral acres would each of them own?

Jake _____ (4 acres X 0.125 X 0.75 = .375 mineral acres)

Jimmy _____ (4 acres X 0.125 X 0.25 = .125 mineral acres)

Problem 3:

If Jimmy sold 1/5th of his mineral interest to his sister Janice, how many mineral acres would Jimmy and Janice both own?

Jimmy _____ Janice _____

Answer:
Jimmy (4 acres X .125 X .25 X 4/5 = 0.100 mineral acres)
Janice (4 acres X .125 X .25 X 1/5 = 0.025 mineral acres)

Problem 4:

Farmer Brown owned 100% of 160-acres from the surface to the center of the earth.

Ten years ago he severed an undivided 75% of the minerals when he sold them to Investor #1.

Investor #1 sold 50% of what he bought to Investor #2.

Investor #2 sold 25% of what he bought to Investor #3.

How many net mineral acres does each of the parties own?

Farmer Brown _____

Investor #1 _____

Investor #2 _____

Investor #3 _____

Answer:
Farmer Brown – 160 X .25 = 40 net mineral acres;
Investor #1 – 160 X .75 X .50 = 60 net mineral acres;
Investor #2 – 160 X .75 X .50 X .75 = 45 net mineral acres;
Investor #3 – 160 X .75 X .50 X .25 = 15 net mineral acres

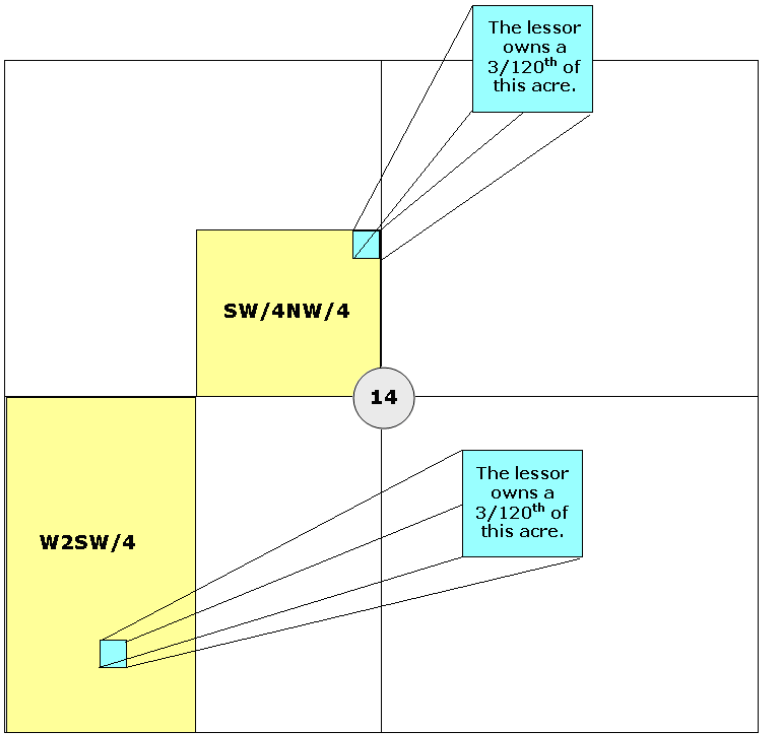
Problem 5:

Investor #3 (in the previous problem) died and his estate was passed as follows: his widow 50%; his oldest son 37.5%, his middle son 6.25% and his youngest son 6.25%. How many net mineral acres would each of the heirs own?

Widow _____ Son #1 _____

Son #2 _____ Son #3 _____

Answer:
Widow - 160 X .75 X .5 X .25 X .5 = 7.5 net mineral acres;
Son #1 - 160 X .75 X .5 X .25 X .375 = 5.625 net mineral acres;
Son #2 – 160 X .75 X .5 X .25 X .0625 = 0.9375 net mineral acres;
Son #3 – 160 X .75 X .5 X .25 X .0625 = 0.9375 net mineral acres.



If the lessor owned an undivided 3/120th interest in these lands, he or she would own a total of 3 net mineral acres – or 3/120 X 120 gross acres. These 3 acres are derived from a 3/120th interest in every acre – no matter where the acre lies.

Using *percentages, decimals and fractions* can be confusing but they are just different ways of showing the same value. For instance:

If you have half of a pie, it can be written…

As a fraction or ½
As a decimal or 0.5
As a percentage or 50%

If you have three-quarters of a pie, it can be written…

As a fraction or 3/4
As a decimal or 0.75
As a percentage or 75%

If you have eaten an eighth of the pie, it can be written…

As a fraction or 1/8
As a decimal or 0.125
As a percentage or 12.5%

We see examples of percentages every time we see a store advertising their next sale of 30-70% off, or a bank telling us we can borrow money for 6.25%. Weather forecasts tell us that there will be a 30% chance of rain and land professionals use percentages when they speak of what portion of the production pie someone will receive.

Decimal numbers are just another way of referring to the same percentage number. For instance, the bank could reference the interest on their loans as 0.0625, or the weather forecast could have shown the chance of rain as 0.30.

Land professionals use decimals for a couple of reasons. First, owners often possess very small fractionalized pieces of the production pie. In order to accurately calculate this interest one will normally calculate to the 8th decimal place (0.00000075).

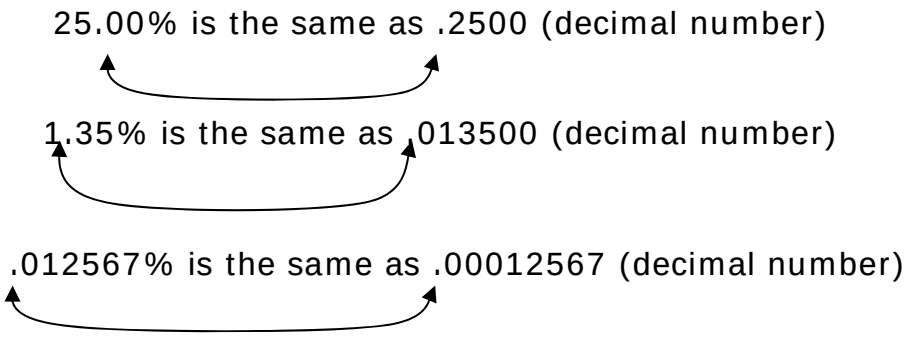
Secondly, when calculating the interests of owners as shown in the previous problems, multiplying by a decimal number becomes much easier than multiplying by a percent.

For instance, in problem 4, Farmer Brown owned 100% of 160-acres. Investor #1 bought 75% of the mineral estate. In order to more easily calculate Investor #1's interest, the land professional would multiply the 160 gross acres by the decimal number or 0.75 (160 X 0.75 = 120 net mineral acres). If we would have used 75 instead of the decimal number, our answer would have been incorrect (160 X 75 = 12,000).

We could have used 75%. In order to do that; however, the percent must be changed into a fraction or 75/100. This method would have given us the correct answer but an additional step would have been necessary to arrive at the answer (160 X 75 / 100 = 120 net mineral acres).

The easiest way to multiply when you have a percent is to *move the decimal point 2 places to the left.* For example:

75.00% is the same as .7500 (decimal number)



The following is a chart of common values used in oil and gas:

Fraction	Percent	Decimal
1/8th	12.5000%	0.12500000
1/6	16.6666%	0.16666666
3/16	18.7500%	0.18750000
1/5	20.0000%	0.20000000
1/4	25.0000%	0.25000000
1/3	33.3333%	0.33333333
3/4	75.0000%	0.75000000

One of the tasks of the land professional is to determine, through an examination of records, who owns interests in a given tract of land. Upon completion of the search, what is called an *Ownership Report* is submitted to the oil and gas company. This report sets out the fractional interest of each undivided mineral owner in the acreage under examination. It is from this report that mineral owners are contacted and asked to negotiate an oil and gas lease. On the following page, track the ownership chain and determine how many net mineral acres each of the individuals own.

1. Harriet Smith owned 160 acres in fee simple.

Harriet Smith

2. In 1971, Harriet Smith sold to Matt and Ruth Perkins an undivided 50% mineral interest in and to all of the oil, gas and other minerals in and under said land.

Matt & Ruth Perkins

3. When Matt and Ruth Perkins died in 1992 their five children, Sandy Perkins, Robert Perkins, Violet Perkins, Rose Perkins, and Mary Perkins inherited their parent's interest in the 160 acres, share and share alike.

4. In 1999 Sandy Perkins quit claimed an undivided 50% of her mineral interest to her daughter, Alice Perkins.

Alice Perkins

In 2001 Mary Perkins quit claimed an undivided 75% of her mineral interest to her son, Brian Perkins.

Brian Perkins

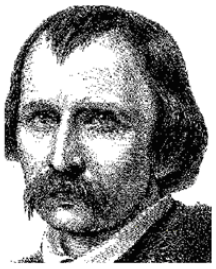
Harriet Smith _____ Sandy Perkins _____ Robert Perkins _____
Violet Perkins _____ Rose Perkins _____ Mary Perkins _____
Alice Perkins _____ Brian Perkins _____

Answer:
Harriet Smith – 80 net mineral acres; Sandy Perkins – 8 net mineral acres; Robert Perkins – 16 net mineral acres; Violet Perkins- 16 net mineral acres; Rose Perkins – 16 net mineral acres; Mary Perkins – 4 net mineral acres; Alice Perkins – 8 net mineral acres; Brian Perkins – 12 net mineral acres.

EXERCISE 7:

Assume each of the Alpha Gulch tracts of land have seen several mineral conveyances. Follow the ownership chain for each of the tracts of land and determine how many net mineral acres each of the individuals own.

Tract 2



Samuel Osborn

1898 - Samuel Osborn conveyed 25% mineral rights to Toby Jenkins

1902 - Samuel Osborn conveyed 50% of his mineral rights to Ruth and Jennie Osborn, share and share alike

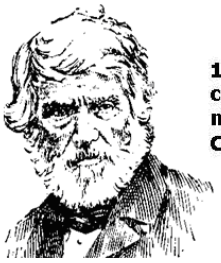
Toby Jenkins

Ruth Osborn

Jennie Osborn

1906 – Toby Jenkins conveyed 50% of his mineral rights to Matt Dixon

1904 - Ruth Osborn conveyed 50% of her mineral rights to Clarence Boone



Clarence Boone

1905 – Clarence Boone conveyed 50% of his mineral rights to Alfred Nolan and Ruben Saul, share and share alike

1906 – Matt Dixon conveyed 33.3% of his mineral rights to Ben Wilkins

Ben Wilkins

Alfred Nolan

Reuben Saul

Tract 2

OWNERSHIP REPORT

Legal Description

Section _____, Township _____, Range _____
___Millard___COUNTY ____ND_, _____ acres more or less

Name of Mineral Owner	Percent of Tract	Net Acres
Samuel Osborn		
Ruth Osborn		
Jennie Osborn		
Clarence Boone		
Alfred Nolan		
Rueben Saul		
Toby Jenkins		
Matt Dixon		
Ben Wilkins		
Total		

Tract 3

Sarah Murphy

Debra Perkins

1903 - Sarah Murphy conveyed 50% of her interest in Tract 3 to Debra Perkins.

J.C. Mitchell, Tulsa Mineral Company

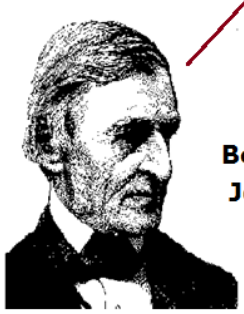
1913 – Sarah Murphy conveyed 62% of her mineral interest to Tulsa Mineral Company.

Ivan Franklin

1913 – Susan Murphy conveyed 33.3% of her mineral interest to Ivan Franklin

Thomas Smith Trust

1915 – Tulsa Mineral Company conveyed 50% of their mineral interest to Thomas Smith Trust and Joseph Landing, share and share alike.



Benjamin Johnson

1935 - Ivan Franklin conveyed 75% of his mineral interest to Johnson Oil Company

Joseph Landing

Tract 3

OWNERSHIP REPORT

Legal Description

Section _____, Township _____, Range _____
___Millard___COUNTY ____ND_, _____ acres more or less

Name of Mineral Owner	Percent of Tract	Net Acres
Sarah Murphy		
Debra Perkins		
Ivan Franklin		
Johnson Oil Co.		
Tulsa Mineral Company		
Thomas Smith Trust		
Joseph Landing		
Total		