Math 7 Notes
Chapter 2
Find Percents of a Number Using Mental Math Strategies

Percent of _____
means
↓
Part of "the whole thing"

100% of 1600 = 1600
50% of 1600 = 800
25% of 1600 = 400

Find 10% of a number

THINK

$10\% = \frac{1}{10}$ which means to ÷ by 10
(move decimal point 1 place left)

Example: 10% of 30
(3) 30.

Find 1% of a number

THINK

$1\% = \frac{1}{100}$ which means to ÷ by 100
(move decimal point 2 places left)

Example: 1% of 5000
(50) 5000.

Sometimes we can use "unit fractions" to find the percent of a #
↓
Numerator is one

To find 1/2 of a number, divide by 2

Example
50% of 2400
1/2 of 2400
24 ÷ 2 = 12 Add 2 zeroes
(1200)

To find 1/3 of a number, divide by 3

Example
$33.\overline{3}\%$ of 270
1/3 of 270
27 ÷ 3 = 9 Add 1 zero
(90)

To find 1/4 of a number, divide by 4

Example
25% of 36
1/4 of 36
36 ÷ 4 = 9
(9)

To find 1/5 of a number, divide by 5

Example
20% of 3000
1/5 of 3000
30 ÷ 5 = 6 Add 2 zeroes
(600)

To find 1/6 of a number, divide by 6

Example
$16.\overline{6}\%$ of 420
1/6 of 420
42 ÷ 6 = 7 Add 1 zero
(70)

To find 1/8 of a number, divide by 8

Example
12.5% of 32
1/8 of 32
32 ÷ 8 = 8
(8)

To find 1/9 of a number, divide by 9

Example
$11.\overline{1}\%$ of 270
1/9 of 270
27 ÷ 9 = 3 Add 1 zero
(30)

For fractions that are NOT unit fractions, to find the percent of a #, we find the unit fraction for that denomiantor first and then multiply by the numerator.

To find 2/3 of a number, find 1/3 of the number and then multiply by 2

Example

66.$\overline{6}$% of 2400
2/3
1/3 of 2400 = 800
800 x 2
(1600)

To find 3/4 of a number, find 1/4 of the number and then multiply by 3

75% of 280
3/4
1/4 of 280 = 70
70 x 3
(210)

To find 2/5 of a #, first find 1/5 and then multiply by 2

Example

40% of 35
2/5
1/5 of 35 = 7
7 x 2
(14)

To find 3/5 of a #, first find 1/5 and then multiply by 3

60% of 250
3/5
1/5 of 250 = 50
50 x 3
(150)

To find 4/5 of a #, first find 1/5 and then multiply by 4

80% of 40
4/5
1/5 of 40 = 8
8 x 4
(32)

To find 2/100 of a number, first find 1/100 and multiply by 2

2% of 700
2/100
1/100 of 700
7 x 2
(14)

To find 3/100 of a number, first find 1/100 and multiply by 3

3% of 6000
3/100
1/100 of 6000 = 60
60 x 3
(180)

Do the same for ↓ 4%, 5%, ...9%

To find 2/10 of a number, first find 1/10 and multiply by 2

20% of 80
2/10
1/10 of 80 = 8
8 x 2
(16)

To find 3/10 of a number, first find 1/10 and multiply by 3

30% of 900
3/10
1/10 of 900 = 90
90 x 3
(270)

Do the same for ↓ 40%, 50%, ...90%

Use this strategy for all non-unit fractions we have memorized.

Examples

37.5% of 320
3/8
1/8 of 320 = 40
40 x 3
(120)

83.$\overline{3}$% of 180
5/6
1/6 of 180 = 30
30 x 5
(150)

77.$\overline{7}$% of 450
7/9
1/9 of 450 = 50
50 x 7
(350)

62.5% of 4800
5/8
1/8 of 4800 = 600
600 x 5
(3000)

Sometimes we find percents of numbers by making combinations of "nice" percents.

5% = 10% ÷ 2
15% = 10% + 5%
150% = 100% + 50%
110% = 100% + 10%
300% = 100% x 3
99% = 100% - 1%
51% = 50% + 1%

and many more...

Example

Find 15% of 600

10% + 5%

10% of 600 + 5% of 400

1/10 of 600 + 10% ÷ 2 of 400

60 + 60 ÷ 2

60 + 30

(90)

You may shorten the steps to something like this. →

15% of 600

10% + 5%

60 + 30

(90)

More Examples...

300% of 5000
100% x 3
5000 x 3
(15,000)

51% of 300
50% + 1%
150 + 3
(153)

5% of 240
10% ÷ 2
24 ÷ 2
(12)

125% of 48
100% + 25%
48 + 12
(60)

250% of 600
200% + 50%
1200 + 300
(1500)

9% of 2500
10% - 1%
250 - 25
(225)

11% of 200

10% + 1%
↓ ↓
20 + 2

(22)

110% of 7000

100% + 10%
↓ ↓
7000 + 700

(7700)

0.5% of 400

1% ÷ 2
↓
4 ÷ 2

(2)

49% of 800

50% - 1%
↓ ↓
400 - 8

(392)

How many different ways can you use mental math to find 40% of 8000

$\frac{2}{5}$ of 8000

$\frac{1}{5}$ of 8000 = 1600 x 2

(3200)

$\frac{4}{10}$ of 8000

$\frac{1}{10}$ of 8000 = 800 x 4

(3200)

50% - 10%
↓ ↓
4000 - 800
3200

$\frac{40}{100}$ of 8000

$\frac{1}{100}$ of 8000 = 80 x 40

(3200)