

Convert Units of Time

Lesson 1

ESSENTIAL QUESTION?

Why do we convert measurements?

The steps that you use to convert units of length, weight, and capacity can be used to convert units of time.



Math in My World

Example 1

Ibrahim watched a butterfly in his garden for 5 minutes. How many seconds did he watch the butterfly?

1 minute = 60 seconds

To convert larger units of time to smaller units of time, multiply.

$$5 \times 60 = \underline{300}$$

Helpful Hint

$$5 \times 6 = 30$$

$$5 \times 60 = 300$$



So, Ibrahim watched a butterfly for 300 seconds.

Key Concept Units of Time

$$1 \text{ minute (min)} = 60 \text{ seconds (s)}$$

$$1 \text{ hour (h)} = 60 \text{ min}$$

$$1 \text{ day (d)} = 24 \text{ h}$$

$$1 \text{ week (wk)} = 7 \text{ d}$$

$$1 \text{ year (y)} = 52 \text{ wk} = 12 \text{ months (mo)}$$

Example 2

Amna is going to watch a movie at the movie theater. The movie starts at 3:30 P.M. and ends at 5:37 P.M. How long is the movie in minutes?

Find the time interval, or the length of time from the start of the movie to the end of the movie.

The time interval between 3:30 and 5:37

is 2 hours and 7 minutes.

Since 1 hour = 60 minutes, multiply 60 by 2.

$$60 \times 2 = \underline{120} \quad 120 + 7 = \underline{127}$$

So, the movie is 127 minutes long.

Count the whole hours.

From 3:30 to 5:30 is 2 hours.

Count the remaining minutes.

From 5:30 to 5:37 is 7 minutes.

Guided Practice

Complete each conversion table.

1.

minutes (min)	seconds (s)	(min, s)
1	60	(1, 60)
2	120	(2, 120)
3	180	(3, 180)
4	240	(4, 240)

2.

hours (h)	days (d)	(h, d)
24	1	(24, 1)
48	2	(48, 2)
72	3	(72, 3)
96	4	(96, 4)

3.

years (y)	weeks (wk)	(y, wk)
1	52	(1, 52)
2	104	(2, 104)
3	156	(3, 156)
4	208	(4, 208)

Talk MATH

What operation would you use to find the number of minutes in 2 hours? Explain.



Independent Practice

Complete each conversion table.

4.

days (d)	weeks (wk)	(d, wk)
14	2	(14, 2)
28	4	(28, 4)
42	6	(42, 6)
56	8	(56, 8)

5.

hours (h)	minutes (min)	(h, min)
3	180	(3, 180)
4	240	(4, 240)
5	300	(5, 300)
6	360	(6, 360)

6.

years (y)	months (mo)	(y, mo)
1	12	(1, 12)
3	36	(3, 36)
5	60	(5, 60)
7	84	(7, 84)

7.

weeks (wk)	years (y)	(wk, y)
260	5	(260, 5)
520	10	(520, 10)
780	15	(780, 15)
1,040	20	(1,040, 20)

Compare. Use $<$, $>$, or $=$.

8. 5 min $>$ 250 s

9. 36 mo $<$ 4 y

10. 300 s $<$ 1 h

11. How many times greater is one minute than one second? 60

12. How many times greater is one hour than one minute? 60

13. How many times greater is one week than one day? 7

14. How many minutes are in the time interval from 1:22 P.M. to 5:44 P.M.? 262

15. How many minutes are in the time interval from 7:09 A.M. to 10:36 A.M.? 207



Problem Solving

16. Badia played on the playground for $2\frac{1}{2}$ hours. How many minutes did she play?

150 minutes

17. Ahmed had to rent the pavilion at the park for a minimum of 3 hours. How many minutes is that?

180 minutes

18. **Mathematical Practice**  **Use Math Tools** Bilal painted his fence from 8:00 A.M. to 11:47 A.M. For how many minutes did he paint the fence?

227 minutes

19. It took Jamal 20 minutes to walk to school. It took Hassan 900 seconds to walk to school. Who took less time to walk to school?

Hassan

Sample answers: 20, 21

HOT Problems

20. **Mathematical Practice**  **Find the Error** Buthaina wrote the following on the board. Find and correct her mistake.

$$2 \text{ years} = 24 \text{ weeks}$$

Buthaina multiplied the number of years by 12 instead of 52.

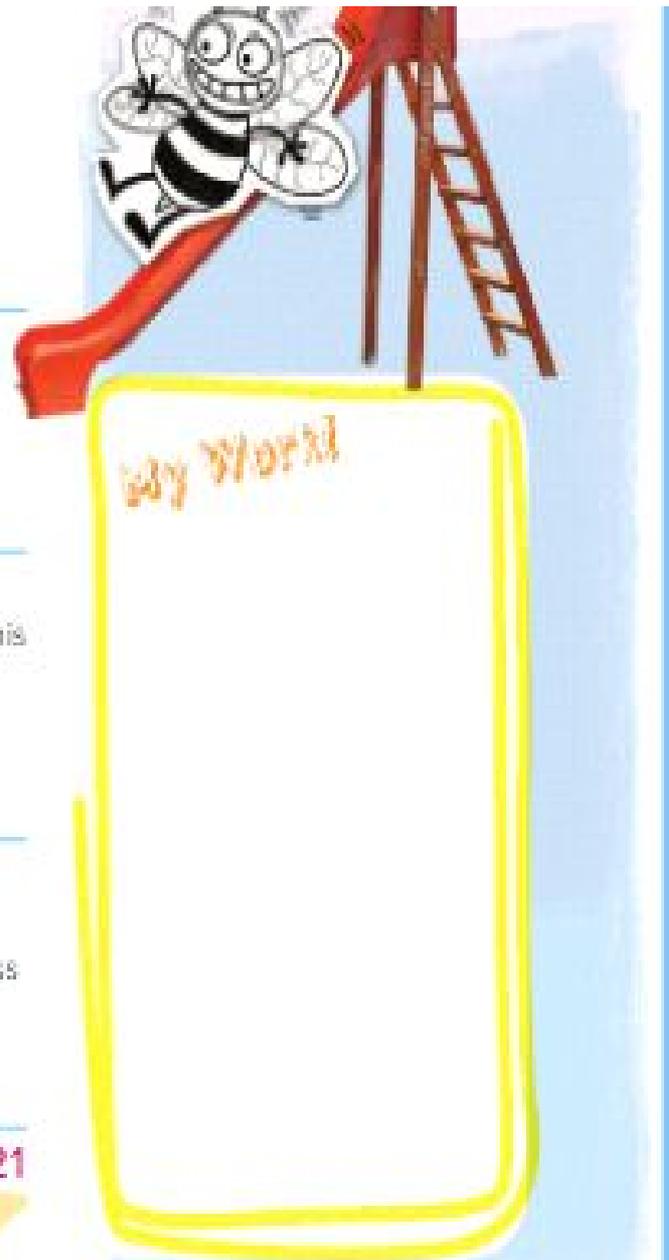
There are 24 months in 2 years. There are 104 weeks in

2 years.

21.  **Building on the Essential Question** How does multiplication relate to time conversions?

Measures are multiplied in order to convert time from a larger

unit to a smaller unit.



MY Homework

Lesson 1

Convert Units of Time

Homework Helper

Halima is celebrating her 3rd birthday.
How many weeks old is she?

To convert a larger unit (years) to a smaller unit (weeks), you need to multiply.

$$\begin{array}{r} 52 \leftarrow \text{weeks in a year} \\ \times 3 \leftarrow \text{Halima age in years} \\ \hline 156 \end{array}$$

So, Halima is 156 weeks old.

Conversion Chart Units of Time
1 minute (min) = 60 seconds (s)
1 hour (h) = 60 min
1 day (d) = 24 h
1 week (wk) = 7 d
1 year (y) = 52 wk = 12 months (mo)

Practice

Convert units to complete each equation.

1. 3 minutes = 180 seconds

2. 5 weeks = 35 days

3. 60 months = 5 years

4. 360 minutes = 6 hours

5. 4 days = 96 hours

6. 416 weeks = 8 years

7. $1\frac{1}{2}$ days = 36 hours

8. $3\frac{2}{7}$ weeks = 23 days

9. 57 months = $4\frac{3}{4}$ years

10. 402 minutes = 6 hours and 42 minutes

Complete each conversion table.

11.

weeks (wk)	days (d)	(wk, d)
2	14	(2, 14)
4	28	(4, 28)
6	42	(6, 42)
8	56	(8, 56)

12.

minutes (min)	hours (h)	(min, h)
540	9	(540, 9)
420	7	(420, 7)
300	5	(300, 5)
180	3	(180, 3)

Problem Solving

13. Khadija is $9\frac{1}{4}$ years old. How many months old is Khadija?

111 months

14. **Mathematical Practice**  **Model Math** Nasser is watching a movie that lasts 1 hour and 37 minutes. He has watched 52 minutes so far. How many minutes are left in the movie?

45 minutes

15. Hessa started her homework at 4:30 P.M. She finished at 5:05 P.M. How many seconds did it take her to finish her homework?

2,100 seconds

Vocabulary Check

16. How many seconds are in 1 minute? 60

Test Practice

17. Hassan's book log shows that he read a total of $4\frac{1}{4}$ hours last month. How many minutes is that?

- Ⓐ 240 minutes Ⓓ 255 minutes
 Ⓑ 250 minutes Ⓔ 270 minutes

