RYTHMETIC

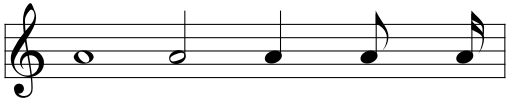
Reading Rhythm in Sheet Music

RHYTHM THEORY

Note values, beats, and time signatures

Note Values

- Each note shape tells us **how long** to play the sound.
- Longer note = longer sound. Shorter note = shorter sound.
- Each value splits exactly in two:
  1 whole note = 2 halves = 4 quarters = 8 eighths = 16 sixteenths.

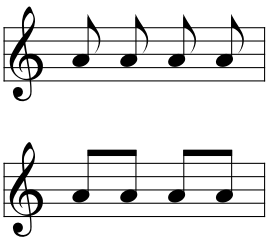


	Whole	Half	Quarter	Eighth	Sixteenth
Beats	4	2	1	$\frac{1}{2}$	$\frac{1}{4}$
Fraction	1	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{16}$

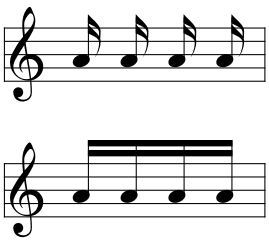
Flags & Beams

- A **flag** is the hook on the stem of a short note (eighth note or shorter).
- Flags of neighboring short notes join into a **beam** — just a writing convention.
- Notes are beamed together **up to the value of one beat**: 2 eighths, or 4 sixteenths.

Eighth notes
(1 flag / 1 beam)



Sixteenth notes
(2 flags / 2 beams)



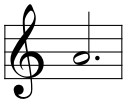
Dotted Notes

- A **dot** after a note adds to it **half of the value**.

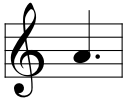
$$\text{Dotted note} = \text{note} + \tfrac{1}{2}\times\text{note} = \tfrac{3}{2}\times\text{note}.$$

	Dotted half	**Dotted quarter**
Beats	3	$\frac{3}{2}$
Calculation	$2+1=3$	$1+\frac{1}{2}=\frac{3}{2}$

Dotted half



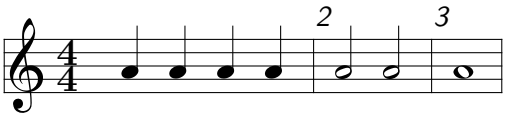
Dotted quarter



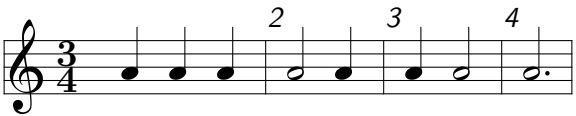
Bars & Time Signatures

- A **bar line** divides the music into equal groups of beats.
- The **time signature** (two numbers at the start):
  - **top number** = beats per bar
  - **bottom number** = which note for one beat (4 = quarter note)

4/4 — 4 beats per bar



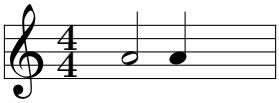
3/4 — 3 beats per bar



RHYTHM PRACTICE

Exercises and quizzes to test your math

Find the missing note value in the bar:



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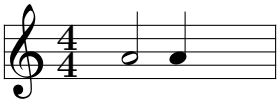

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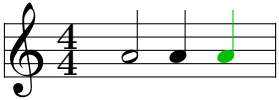

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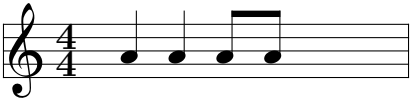

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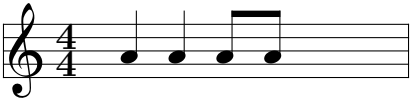

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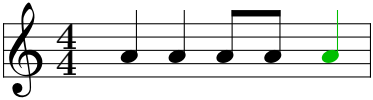

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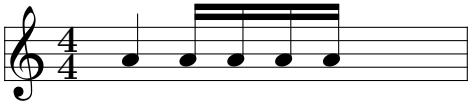

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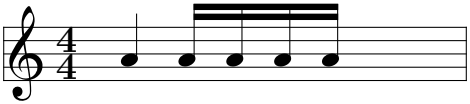

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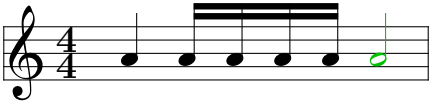
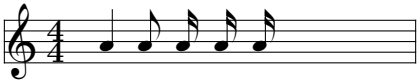


Find the missing note value in the bar:

Can we complete the bar with a single note? With two notes? With three notes?



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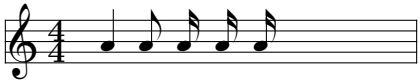
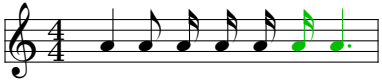
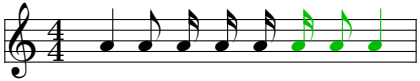


A single note cannot complete this bar: $\frac{1}{4} + \frac{1}{8} + 3 \times \frac{1}{16} = \frac{9}{16}$

This means a single note with value $1 - \frac{9}{16} = \frac{7}{16}$ would be needed to fill the bar — but no such note value exists.

Solutions with two or three notes:





Equivalent notes QUIZ

How many quarter notes are needed to fill the same duration as one whole note?

Equivalent notes QUIZ

How many quarter notes are needed to fill the same duration as one whole note?

Solution: Four quarter notes.

Equivalent notes QUIZ

How many eighth notes are equivalent to one half note?

Equivalent notes QUIZ

How many eighth notes are equivalent to one half note?

Solution: Four eighth notes.

Equivalent notes QUIZ

How many sixteenth notes are needed to replace one half note?

Equivalent notes QUIZ

How many sixteenth notes are needed to replace one half note?

Solution: Eight sixteenth notes.

Equivalent notes QUIZ

A student replaces a whole note with only sixteenth notes. How many sixteenth notes do they need?

Equivalent notes QUIZ

A student replaces a whole note with only sixteenth notes. How many sixteenth notes do they need?

Solution: Sixteen sixteenth notes.

Equivalent notes QUIZ

A student replaces a dotted half note with quarter notes only. How many quarter notes are needed? Is this possible with eighth notes instead?

Equivalent notes QUIZ

A student replaces a dotted half note with quarter notes only. How many quarter notes are needed? Is this possible with eighth notes instead?

Solution: A half dotted note has the note value $\frac{3}{4}$. Three quarter notes are needed or six eighth notes.

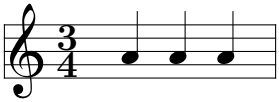
Time signature QUIZ

In $\frac{3}{4}$ time, how many quarter notes fit in one bar?

Time signature QUIZ

In $\frac{3}{4}$ time, how many quarter notes fit in one bar?

Solution: Three quarter notes.



Time signature QUIZ

In $\frac{3}{4}$ time, a student tries to place a half note and two quarter notes in the same bar. Is this possible?

Time signature QUIZ

In $\frac{3}{4}$ time, a student tries to place a half note and two quarter notes in the same bar. Is this possible?

Solution: It's not possible. A half note plus two quarter notes adds up to a full bar ($\frac{4}{4}$), not $\frac{3}{4}$.

Time signature QUIZ

In $\frac{6}{8}$ time, each bar contains six eighth-note beats. How many quarter notes fit exactly in one bar? Is there a remainder?

Time signature QUIZ

In $\frac{6}{8}$ time, each bar contains six eighth-note beats. How many quarter notes fit exactly in one bar? Is there a remainder?

Solution: Three quarter notes. There is no remainder.

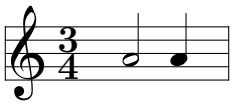
Time signature QUIZ

In $\frac{3}{4}$ time, a bar contains a half note and one other note. What must that note be?

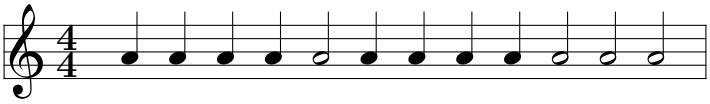
Time signature QUIZ

In $\frac{3}{4}$ time, a bar contains a half note and one other note. What must that note be?

Solution: It must be a quarter note.



Place the bar lines:



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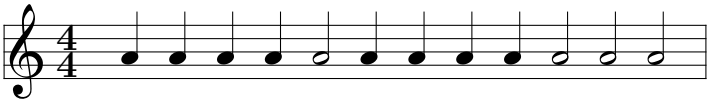

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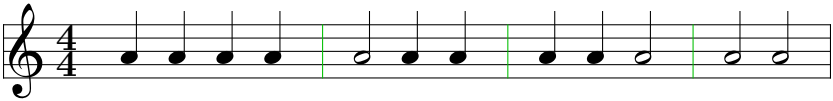

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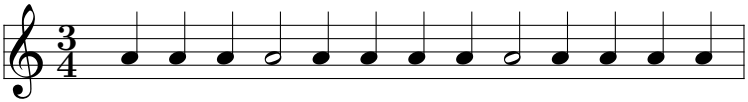

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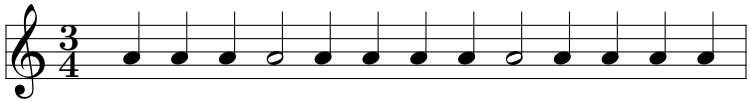

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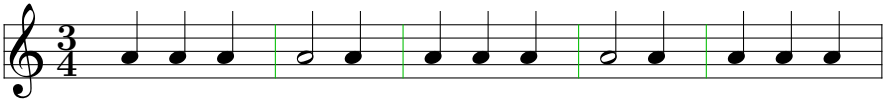

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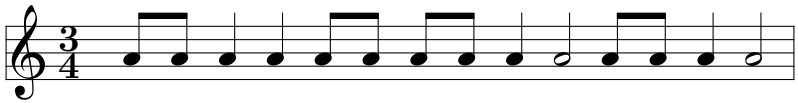

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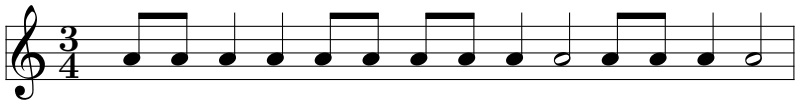

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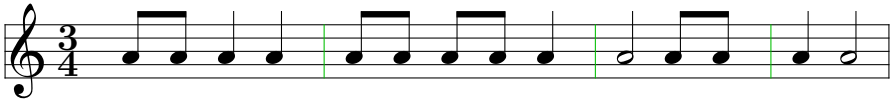


Dotted notes QUIZ

How many dotted quarter notes fit exactly in one bar of $\frac{3}{4}$ time?

Dotted notes QUIZ

How many dotted quarter notes fit exactly in one bar of $\frac{3}{4}$ time?

Solution: Two dotted quarter notes.

Dotted notes QUIZ

A dotted eighth note is followed by a sixteenth note. Do they together last one beat?

Dotted notes QUIZ

A dotted eighth note is followed by a sixteenth note. Do they together last one beat?

Solution: Yes. $\frac{3}{16} + \frac{1}{16} = \frac{1}{4}$, which corresponds to one beat.

Dotted notes QUIZ

Can you fill a bar of $\frac{4}{4}$ time using only dotted quarter notes?

Dotted notes QUIZ

Can you fill a bar of $\frac{4}{4}$ time using only dotted quarter notes?

Solution: No. Two dotted quarter notes fill $\frac{3}{4}$ of a bar, and three dotted quarter notes exceed a bar.

Ratio of note values QUIZ

What is the ratio of a quarter note to a whole note?

Ratio of note values QUIZ

What is the ratio of a quarter note to a whole note?

Solution: The ratio is $4 : 1$.

Ratio of note values QUIZ

How many times longer is a half note than an eighth note?

Ratio of note values QUIZ

How many times longer is a half note than an eighth note?

Solution: A half note is four times longer than an eighth note.

Ratio of note values QUIZ

A whole note is how many times longer than a sixteenth note?

Ratio of note values QUIZ

A whole note is how many times longer than a sixteenth note?

Solution: A whole note is sixteen times longer than a sixteenth note.

Ratio of note values QUIZ

Two pupils are clapping. Pupil A claps every quarter note, and pupil B claps every eighth note. For every clap of pupil A, how many times does pupil B clap?

Ratio of note values QUIZ

Two pupils are clapping. Pupil A claps every quarter note, and pupil B claps every eighth note. For every clap of pupil A, how many times does pupil B clap?

Solution: Pupil B claps twice as often, so two times for every clap of Pupil A.

Ratio of note values QUIZ

In a bar of $\frac{3}{4}$ time, what fraction of the bar does a single eighth note occupy?

Ratio of note values QUIZ

In a bar of $\frac{3}{4}$ time, what fraction of the bar does a single eighth note occupy?

Solution: It occupies $\frac{1}{6}$ of a bar.

Ratio of note values QUIZ

Two pupils are clapping. Pupil A claps every dotted quarter note and pupil B claps every eighth note. For every clap of pupil A, how many times does pupil B clap?

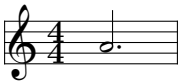
Ratio of note values QUIZ

Two pupils are clapping. Pupil A claps every dotted quarter note and pupil B claps every eighth note. For every clap of pupil A, how many times does pupil B clap?

Solution: Pupil B claps three times for every clap of Pupil A.

Complete the bar

Find all possible combinations of at most three note values (chosen from sixteenth, eighth, quarter, half and whole) that complete the bar:



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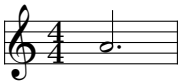
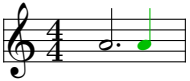
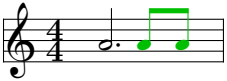


Solutions:





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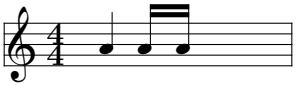

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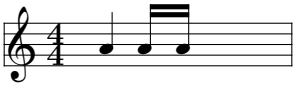

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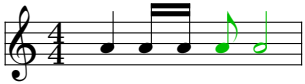

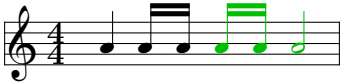

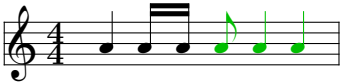

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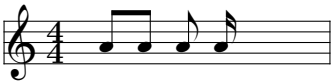

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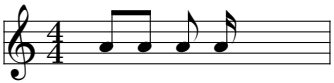

Solutions: