

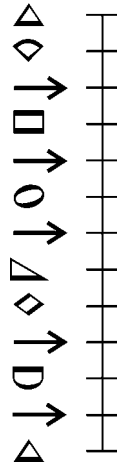
# 5

## PITCH MODIFICATION & KEYS

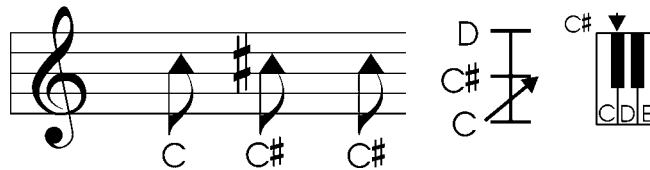
**Scope:** The so far unused half steps are presented along with keytones, the tones on which Do is placed (Key Signatures).

### Modifying pitch

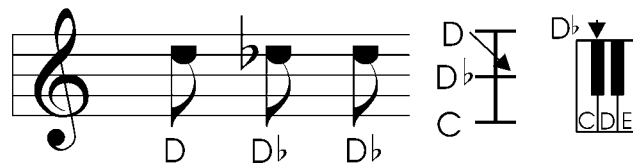
Notice that in the following figure, there are five unused positions on the gauge. These positions can be selected by the use of pitch modifiers.



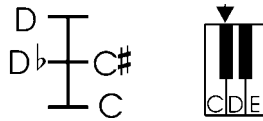
A *sharp* ( # ) raises the pitch of a degree one half step. In the figure below, the C degree has been raised one half step in pitch with the use of a sharp and is now called "C Sharp". Notice that the modifier affects any note placed on that degree. On the keyboard, the key played for C Sharp is the black key between the C and D keys.



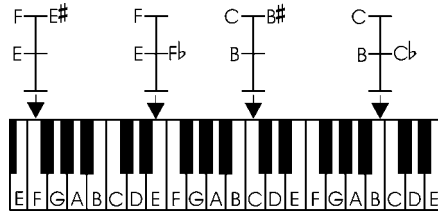
A *flat* ( ♭ ) lowers the pitch of a degree one half step. In the next figure, the D degree has been lowered in pitch one half step with the use of a flat and is called "D Flat". On the keyboard, the key played for D Flat is the black key between the C and D keys.



Notice that D flat and C sharp are actually the same pitch. That is why the same black key is used for both of them.



Actually any degree can be modified, even if the modified pitch becomes the same pitch as an already named degree (a Diatonic tone).

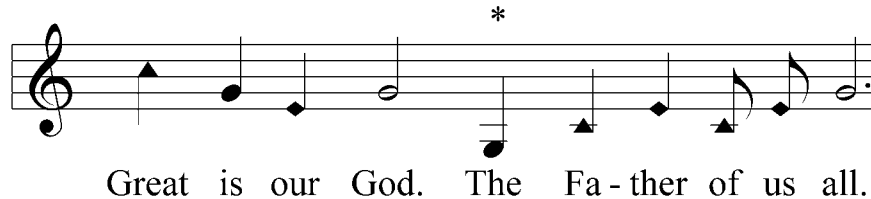


**Key Signatures**

So far our keytone (Do) has always been placed on C in major keys. When a song is written in this way, it is said to be written in the Key of C, the keytone is on C. In this case the half step between Mi and Fa matches with the half step between E and F and the half step between Ti and Do matches with the half step between B and C.

**Key of C**

But Do can be placed on any pitch to make a song more comfortable to sing. Consider the following example. Only the melody of this song is shown. Notice that Do is on C, therefore the song is written in the Key of C. According to chapter two, the fifth note is too low for the soprano voice.



If this same melody is written an octave higher, then the first note is too high for the soprano voice.



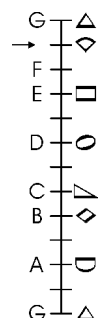
However, if Do is placed on G, then all the notes fall within the range of the soprano voice.



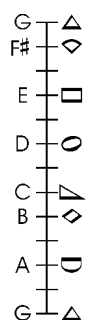
## Keys with sharps

### Key of G

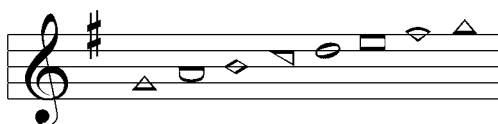
When Do is placed on G, the name of the key is G. But a problem arises. Notice on the gauge below that when Do is placed on G, the absolute pitches do not match the relative pitches between E and F.



The relationships between the relative pitches must be maintained because it is the relationship between the tones of the Major Diatonic Scale that we hear. Notice on the next gauge that F can be raised a half step by using a sharp, thus placing Ti on F sharp. Now the absolute pitches match the relative pitches.



Whenever the absolute pitches are modified to match the relative pitches, the sharps or flats used are placed in a key signature which is found after the clef on the staff. When a sharp or flat is placed in a *Key Signature*, it affects not only the degree on which it is found but all degrees of that same name.



When the Major Diatonic Scale in the key of G is played on a keyboard, the keys are played in the sequence shown below.



**Key of D**

When Do is placed on the degree D, the degrees F and C must be sharpened to make the absolute pitches match the relative pitches.

**Key of A**

**Key of E**

**Key of B**

**Key of F #**

Although not in common use, the Key of F Sharp is valid. Notice that Do is on the degree F Sharp (F sharpened in the key signature).

The following are three methods of finding the name of the key of a song with sharps in the key signature.

❶ Method I makes use of a saying that can be memorized.

Number of sharps	Sharps in order	Name of key	Memory saying
1	F	G	God
2	FC	D	Destroyed
3	FCG	A	All
4	FCGD	E	Earth
5	FCGDA	B	By
6	FCGDAE	F Sharp	Flood

❷ Method II for sharps.

Notice that the right most sharp in the key signature is always one half step below Do (the name of the key).

❸ Method III for sharps.

If the song is written in shaped notes, the degree on which Do is placed is the name of the key. Just find a Do and check to see if the degree on which Do is placed is modified in the key signature. The name of that degree is the name of the key.

**Keys with flats**

So far Do has been placed on the indicated pitches in the next figure. The placement of Do on the remaining pitches will require flats in the key signature.



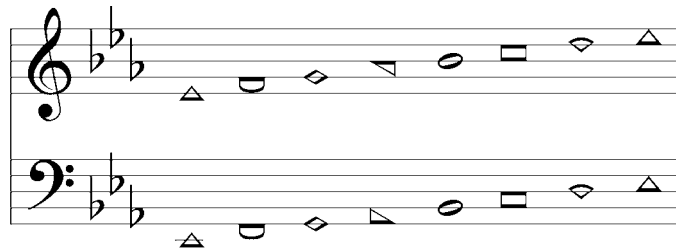
**Key of F**

When Do is placed on F (Key of F), Fa is not on a named degree. B is not being used and can be lowered with a flat. Fa will now be on B Flat.

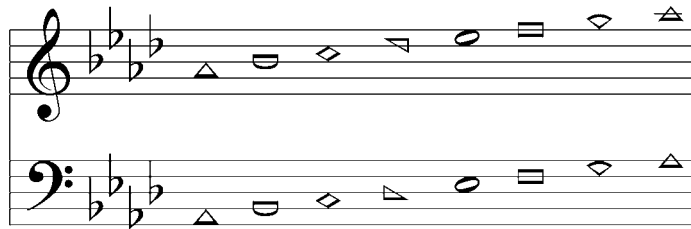
**Key of Bb**

Do is now placed on the pitch between A and B. The B is lowered a half step by use of a flat, placing Do on B Flat. E is then lowered to place Fa on E Flat.

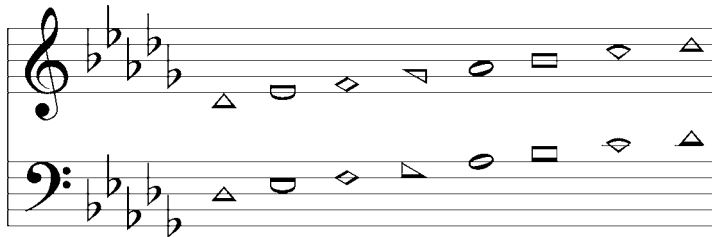
**Key of E $\flat$**



**Key of A $\flat$**



**Key of D $\flat$**



**Key of G $\flat$**

Although not in common usage, the Key of G $\flat$  is valid.

Notice that F $\sharp$  and G $\flat$  are the same pitch. Even though the tones of the G $\flat$  scale look to be higher than those of the F $\sharp$  scale when viewed on staves, they are actually the same pitches.

Four methods for finding the name of the key for songs written with flats in the key signature are presented below.

❶ Method I is by memorizing a saying.

Number of flats	Flats in order	Name of key	Memory saying
1	B	F	For
2	BE	B Flat	Being
3	BEA	E Flat	Evil
4	BEAD	A Flat	And
5	BEADG	D Flat	Disobeying
6	BEADGC	G Flat	God

❷ Method II for flats.

Notice that when there are at least two flats in the key signature, the next to the last flat is on the degree that is the name of the key. The key with only one flat (F) is the only key name that must be memorized.

❸ Method III for flats.

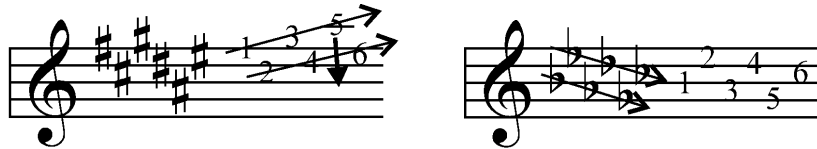
Again, when shaped notes are used, the degree on which Do is found is the name of the key. With flats in the key signature it becomes critical to notice if the degree on which Do is found is modified in the key signature or not. If Do is on B, the key is B if that degree is not modified or is B flat if the B degree is modified with a flat in the key signature.

❹ Method IV with flats.

Count down from the last flat in the key signature three degrees. The name of that degree will be the name of the key.

### Order of sharps and flats in key signatures

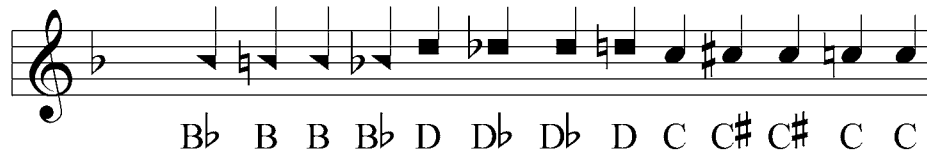
The sharps and flats in key signatures are placed in the signatures in the order in which additional sharps or flats are needed when building the signatures. The following illustration numbers the sharps and flats as they are added to the signatures. Notice that the sharps form two ascending lines while the flats form two descending lines. The fifth sharp falls on a ledger line above the staff and is thus lowered to the second space on the staff.



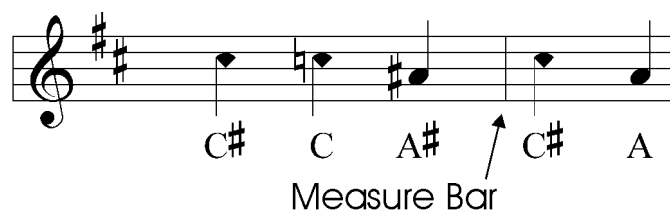
### Accidentals

An *accidental* is a sharp or flat placed on a degree someplace other than in the key signature. The accidental affects tones placed after it on that degree only.

A *natural* ( $\natural$ ), also called a *cancel*, is an accidental that will do away with any sharp or flat associated with the degree on which the natural is placed. It does not matter whether the sharp or flat is in the key signature or is an accidental. As with other accidentals, the natural only affects the degree on which it is placed.



A *measure bar*, a vertical line connecting the bottom and top lines of a staff, will cancel all accidentals and restore the effects of the sharps or flats found in the key signature.



**Summary:** The Key Signature modifies the Absolute Pitches of the staff to match the tones of the Major Diatonic Scale after Do is placed on a pitch. Accidentals modify the pitches of the Major Scale as the other half steps are used.

## Exercises

Define the following:

1. Sharp \_\_\_\_\_
2. Flat \_\_\_\_\_
3. Natural (Cancel) \_\_\_\_\_

Write the names of the absolute pitches below each note:

4.



5.



6.



7.



8.



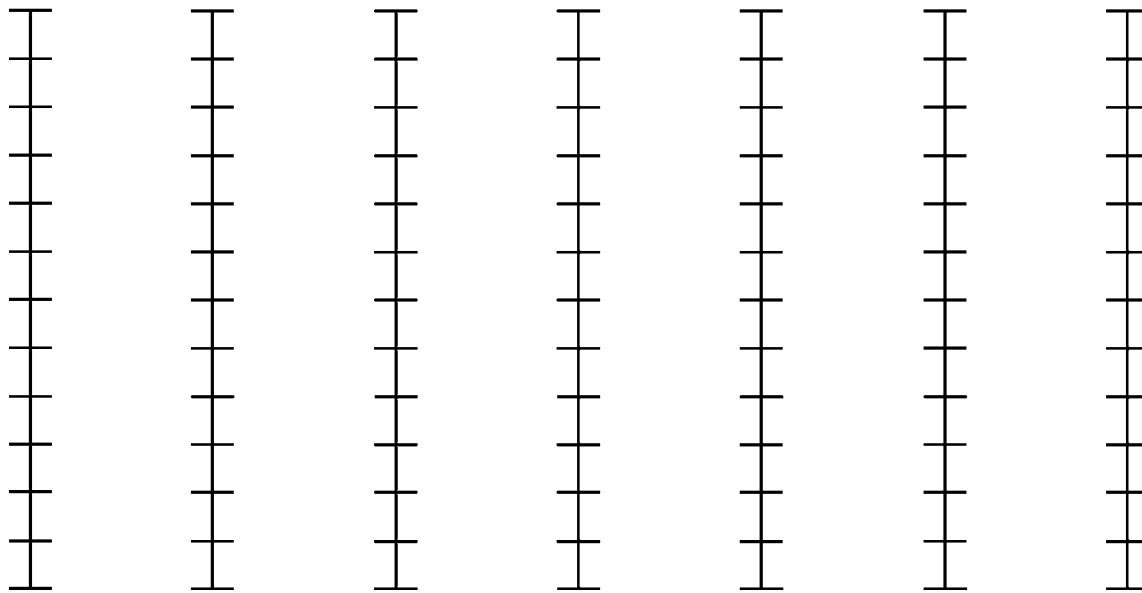
9.



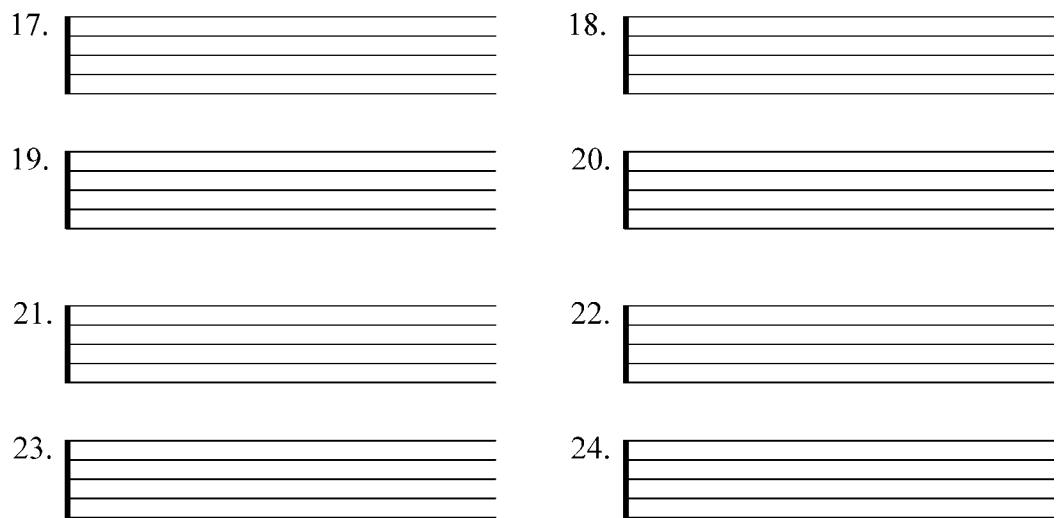
Chapter 5 Exercises cont.

Use the following gauges and staves per instructions from the instructor:

10. 11. 12. 13. 14. 15. 16.



17. 18. 19. 20. 21. 22. 23. 24.



Name the following keys:

25. 26. 27. 28.



29. 30. 31. 32.



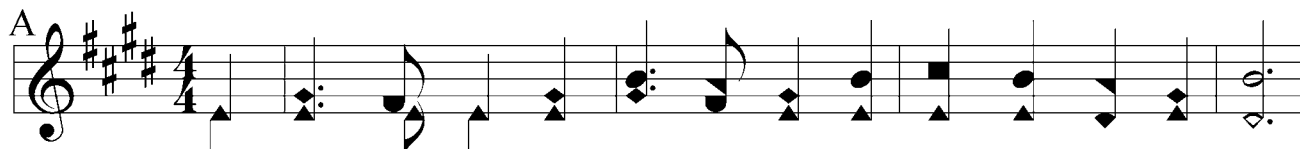
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## Transposition

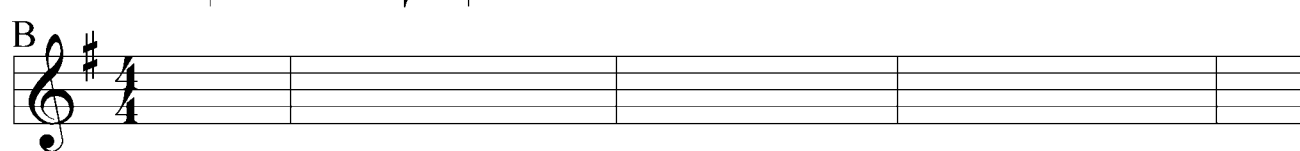
In the following exercises, rewrite the notes on the A staves to the new key on the B staves.

33.

A



B



34.

A



B

