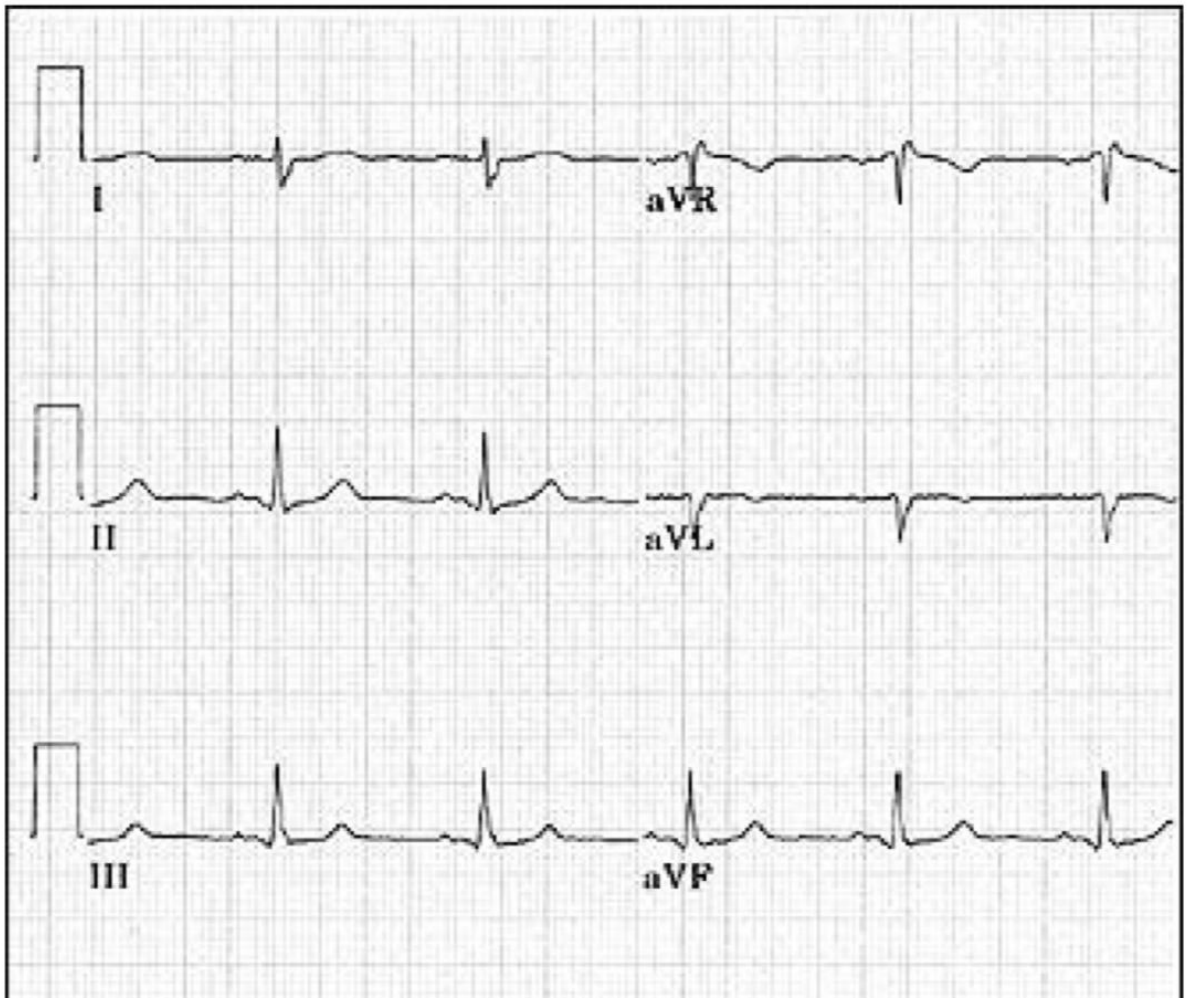
1. Determine the QRS axis for this ECG:

A. -100 degrees
B. -30 degrees
C. +15 degrees
D. +90 degrees
E. Indeterminate



Answer: D (Lead I is isoelectric and since aVF is positive, you know the axis is +90 degrees).

2. A 56-year-old man comes to the emergency department due to chest palpitations. The patient feels that his heartbeat is fast and irregular. He has had no chest pain, shortness of breath, or dizziness. He is otherwise healthy and takes no medications. Pulse check confirms the presence of an irregularly irregular rhythm with a rate of 138/min. This patient's ECG strip is most likely to show which of the following?

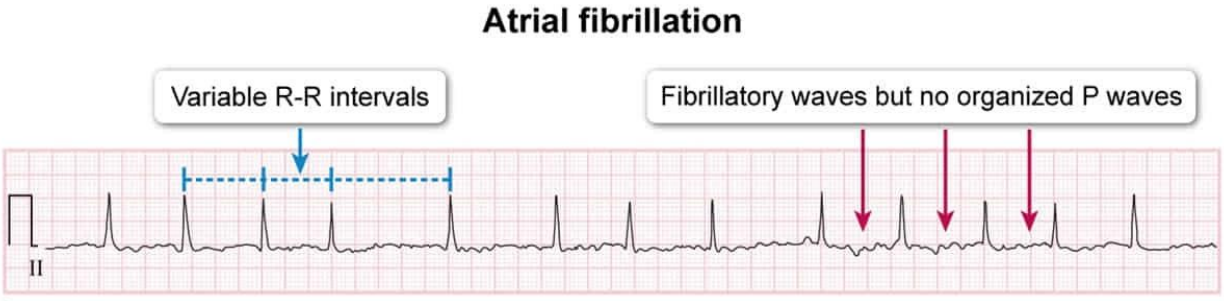
a.

b.

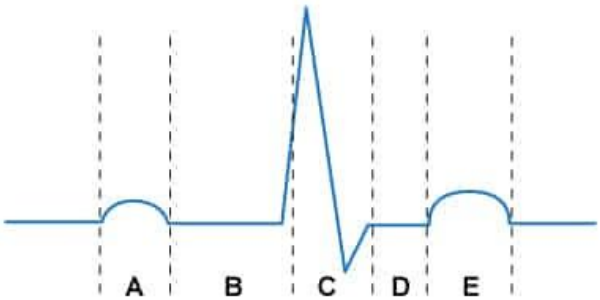
c.

d.

Answer: c (This patient with palpitations and an irregularly irregular pulse most likely has atrial fibrillation, the most common cause of an irregularly irregular rhythm. ECG typically shows an absence of P waves and an irregularly irregular rhythm with varying R-R intervals).



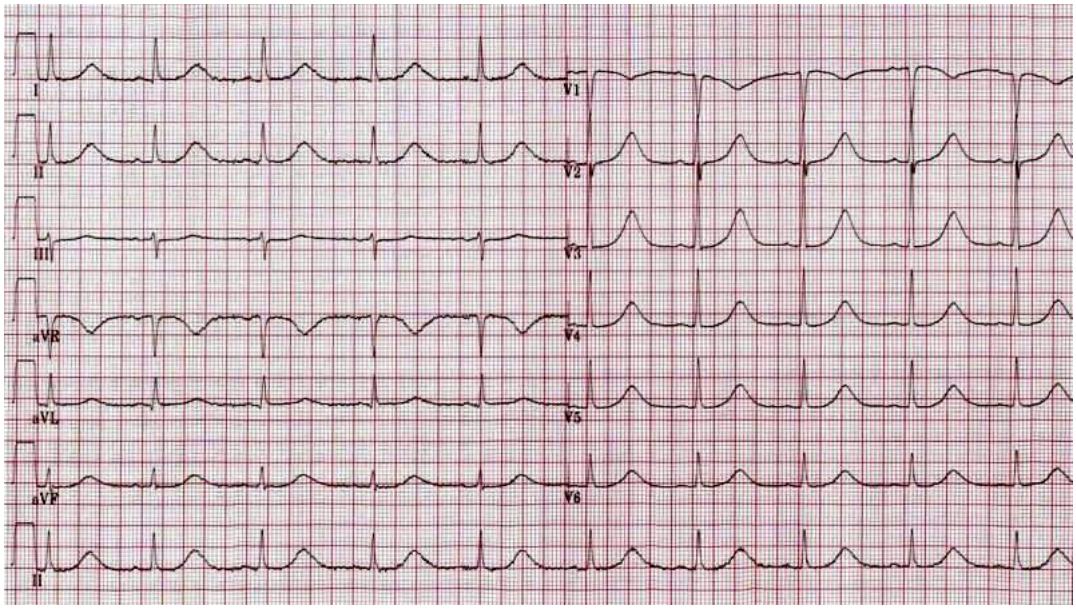
3. A 21-year-old man comes to the office due to recurrent heart palpitations that start and stop abruptly. Further evaluation is indicative of an abnormal accessory conduction pathway in the patient's heart that bypasses the atrioventricular node. Which of the following portions of this patient's ECG is most likely to be affected during normal sinus rhythm?



A. A
B. B
C. C
D. D
E. E

Answer: B (An accessory pathway is an extra electrical connection that allows impulses to bypass the atrioventricular (AV) node, causing the ventricles to contract earlier than normal. This early contraction, or preexcitation, leads to specific changes on an ECG during normal heart rhythm. These changes include a **shortened PR interval** (less than 120 milliseconds) and a slurred beginning to the QRS complex, known as the "delta wave).

4. What is the abnormal finding in the following ECG?



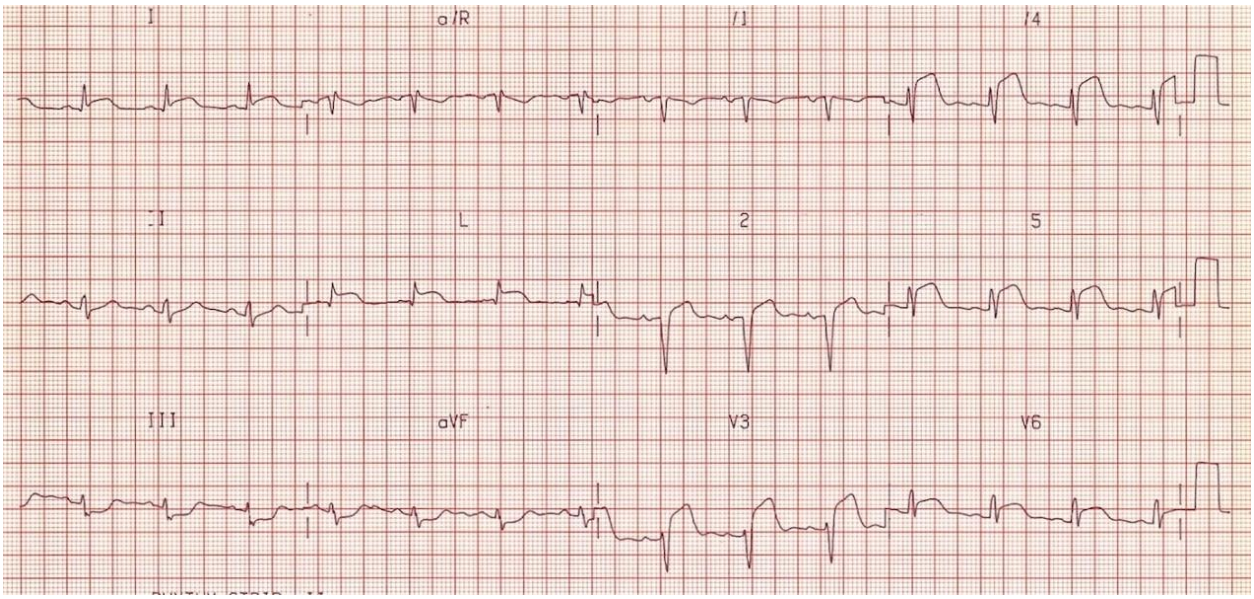
A. Increased HR
B. Irregular heart rhythm
C. T- wave inversion
D. Global ST segment elevation
E. Prolonged QT interval

Answer: E (This patient has a prolonged QT interval and a cause for this should be sought. As a rule of thumb, if the end of the QT interval is over half way to the next QRS then consider long QT).

Rate	85
Rhythm	Regular
PR/P wave	Unable to assess
QRS	Wide
ST/T wave	Wide
QTc/other	Prolonged

5. What is the abnormal finding in the following ECG?

A. Prolonged P-R interval
B. Irregular heart rhythm
C. absent P-wave
D. ST segment elevation
E. Prolonged QT interval



Answer: D (This patient has ST elevation in the anterior and lateral leads. This is therefore an anterolateral ST elevation MI (STEMI).

Presentation:

Rate	90
Rhythm	Regular
Axis	Normal
PR/P wave	Normal
QRS	Narrow
ST/T wave	Grossly elevated in V2, V3, V4, V5 and V6. Reciprocal depression in II, III and aVF.
QTc/other	Normal