A guide to successfully writing MCQ's

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Introduction

- Background
- The MCQ
  - Why MCQ's
  - Writing
  - Examinations
  - Examples

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Types of examination

- Formative
- Summative
  - High stakes
- Viva type examinations
  - Highly subjective, even with set questions
- Essay type examinations
  - Model answers, time consuming
- MCQ's
  - Objective, least flawed

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Formative vs Summative

- Formative
  - Self feedback
  - To check learning at the end of a chapter
  - Low stakes
  - Low rigour
- Summative
  - High stakes
  - Consistency
  - Accuracy

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MCQ's in a wider context

- Knowledge is only part of being a good Dr!
  - Knowledge
  - Compassion
  - Current
  - Competent
  - Bedside manner

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MCQ's in a wider context

- Knowledge is only part of being a good Dr!
  - Knowle
  - Compa
  - Current
  - Competent
  - Bedside manner

In other words:
Be a "Professional"

MCQ's in a wider context

- Knowledge is only part of being a good Dr!
  - Knowle
  - Compa
  - Current
  - Compe
  - Bedside

In other words:
Be a "Professional"

MCQ's can only
assess knowledge

MCQ: where to start

- Curriculum
  - Must cover all of it!
  - Appropriate exam setting
- Question writers
- Agreed style

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MCQ: Advantages

- Computer based exam
  - Flexibility
  - Stagger question order between candidiates
- MCQ bank
  - Contained costs
  - Needs to be secure
- Predetermined agreed correct answers
- Less dependent on knowledge of English
- No negative marking

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MCQ: Good MCQ

- Stem
- Clear question
- 5 answers
  - 1 correct
  - 4 distractors
- Positive question
- Plausible distractors
- Same answer across Europe

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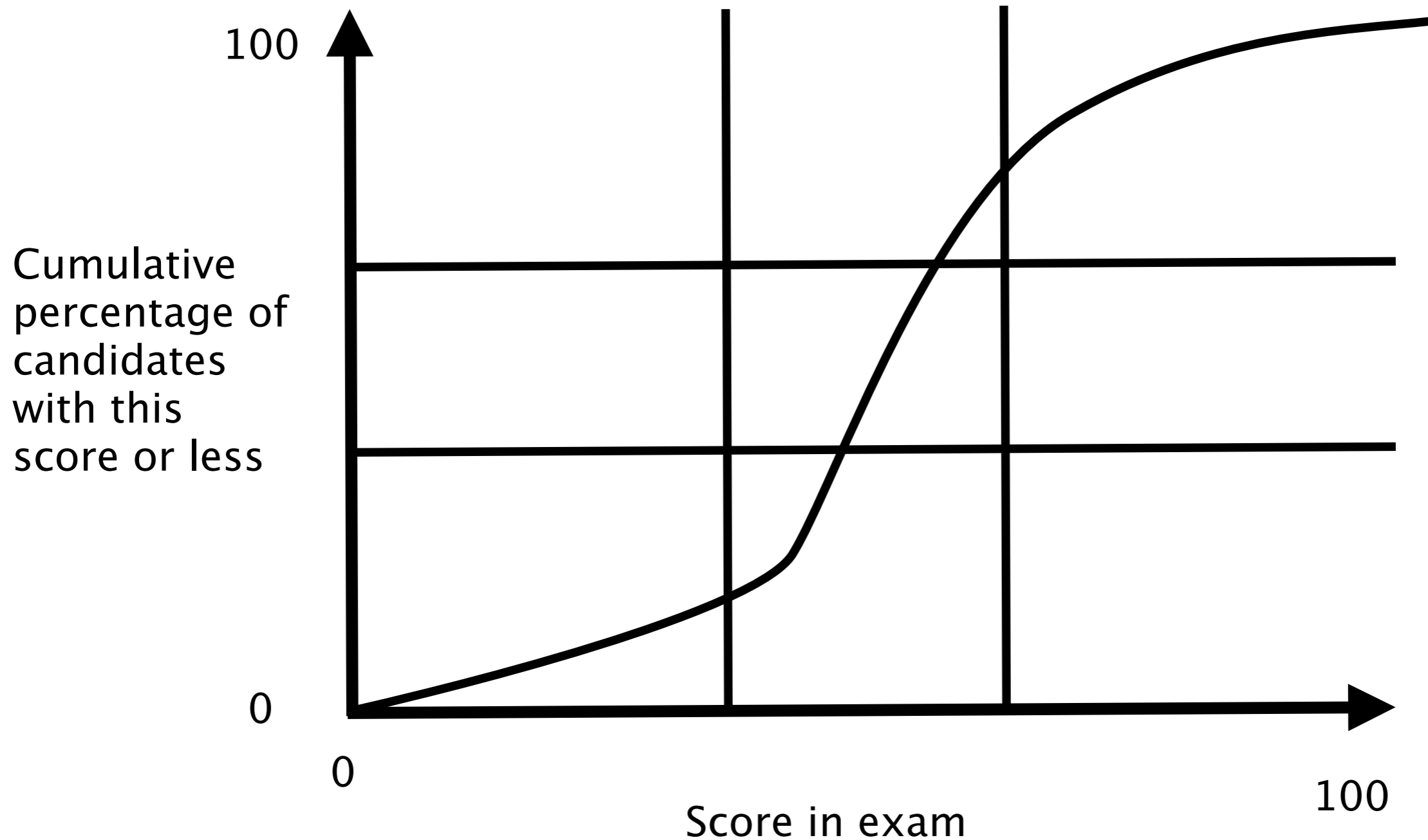Centre for Advanced Cardiovascular Imaging

MCQ: Good MCQ

- Answers same length
- Alphabetical or random
- Must be evidence base for answer
- Avoid
  - All of the above
  - None of the above
- Ensure you cannot work out one question from the information in another one!

MCQ: Good MCQ

- Assessment
- Angoff score
  - How likely a borderline candidate will get this correct?
- Modified Angoff
- Correlation with overall performance
- Range of difficulty

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MCQ: Setting the pass mark

Cumulative percentage of candidates with this score or less
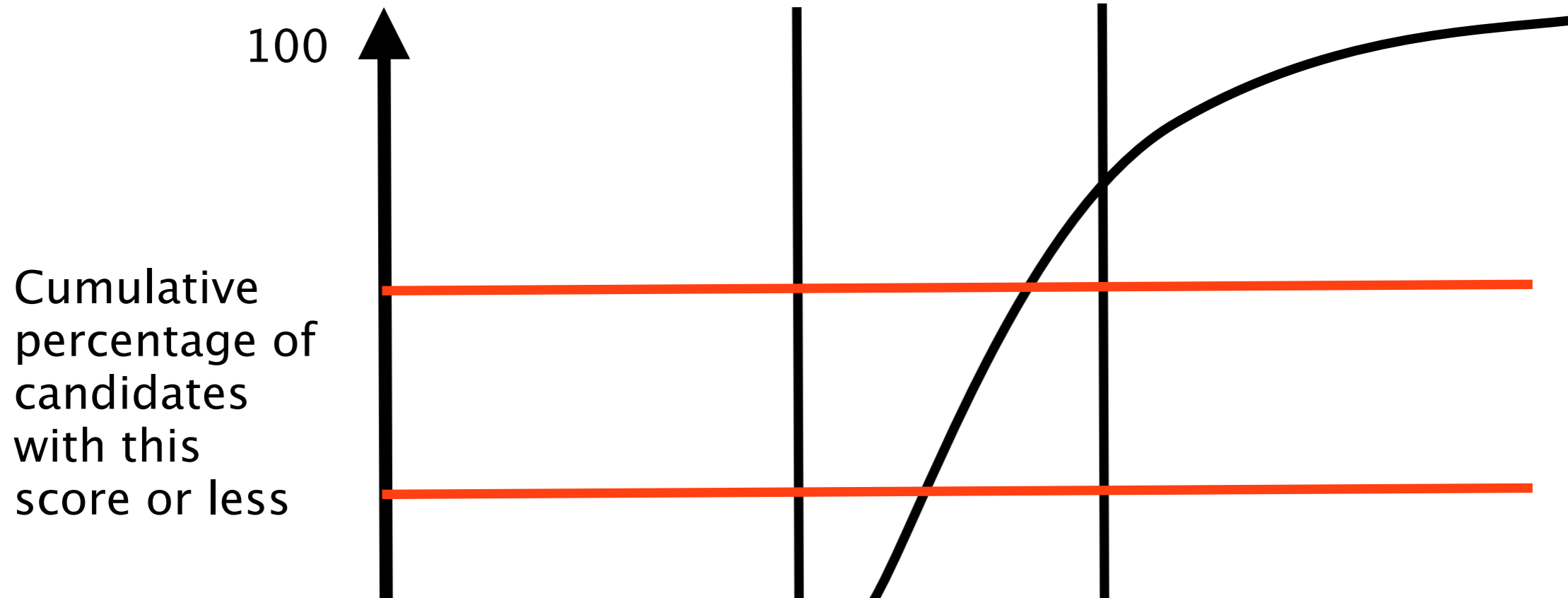
100

0

0

Score in exam

100

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MCQ: Setting the pass mark

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MCQ: Setting the pass mark

100

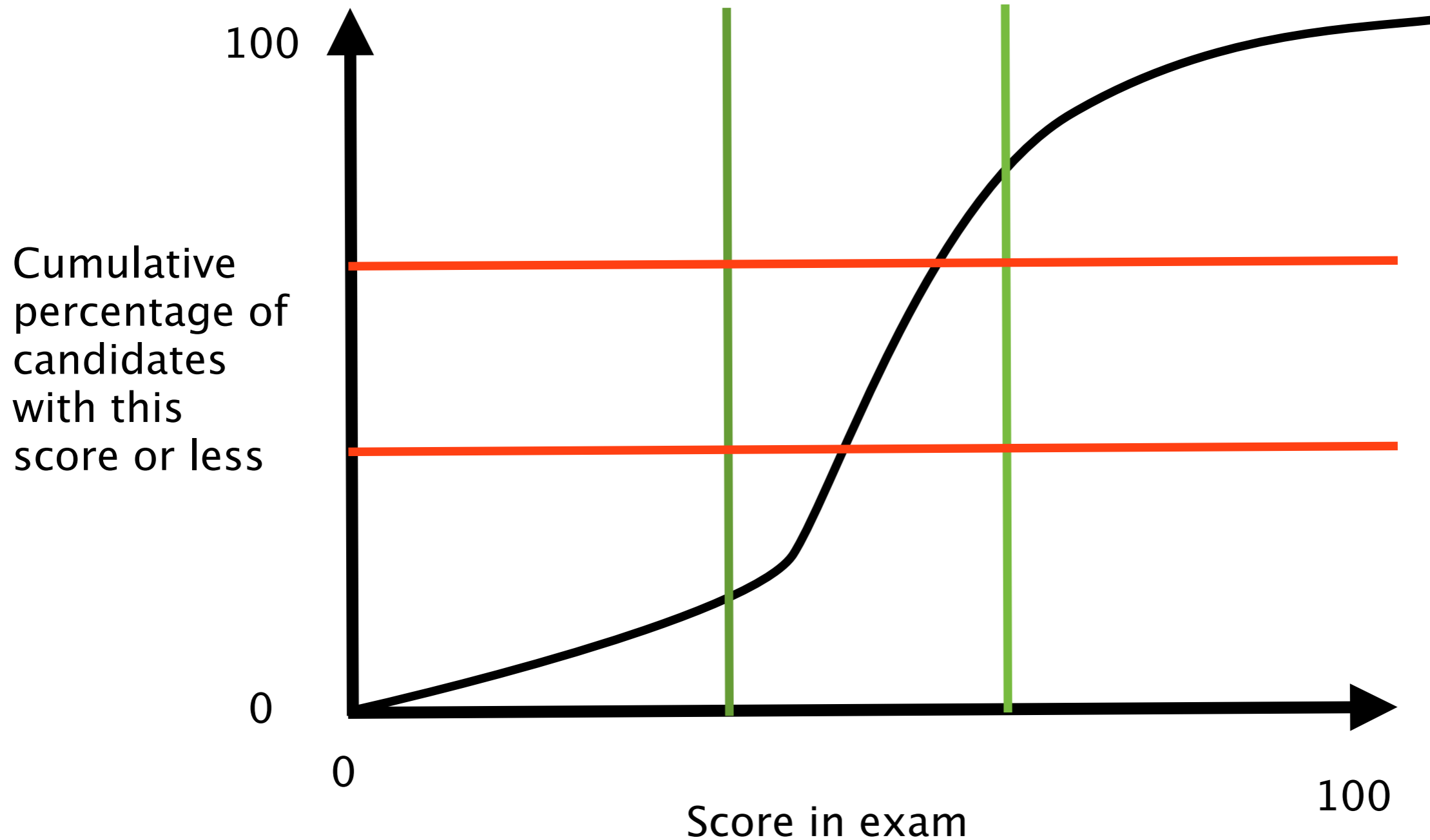Cumulative percentage of candidates with this score or less
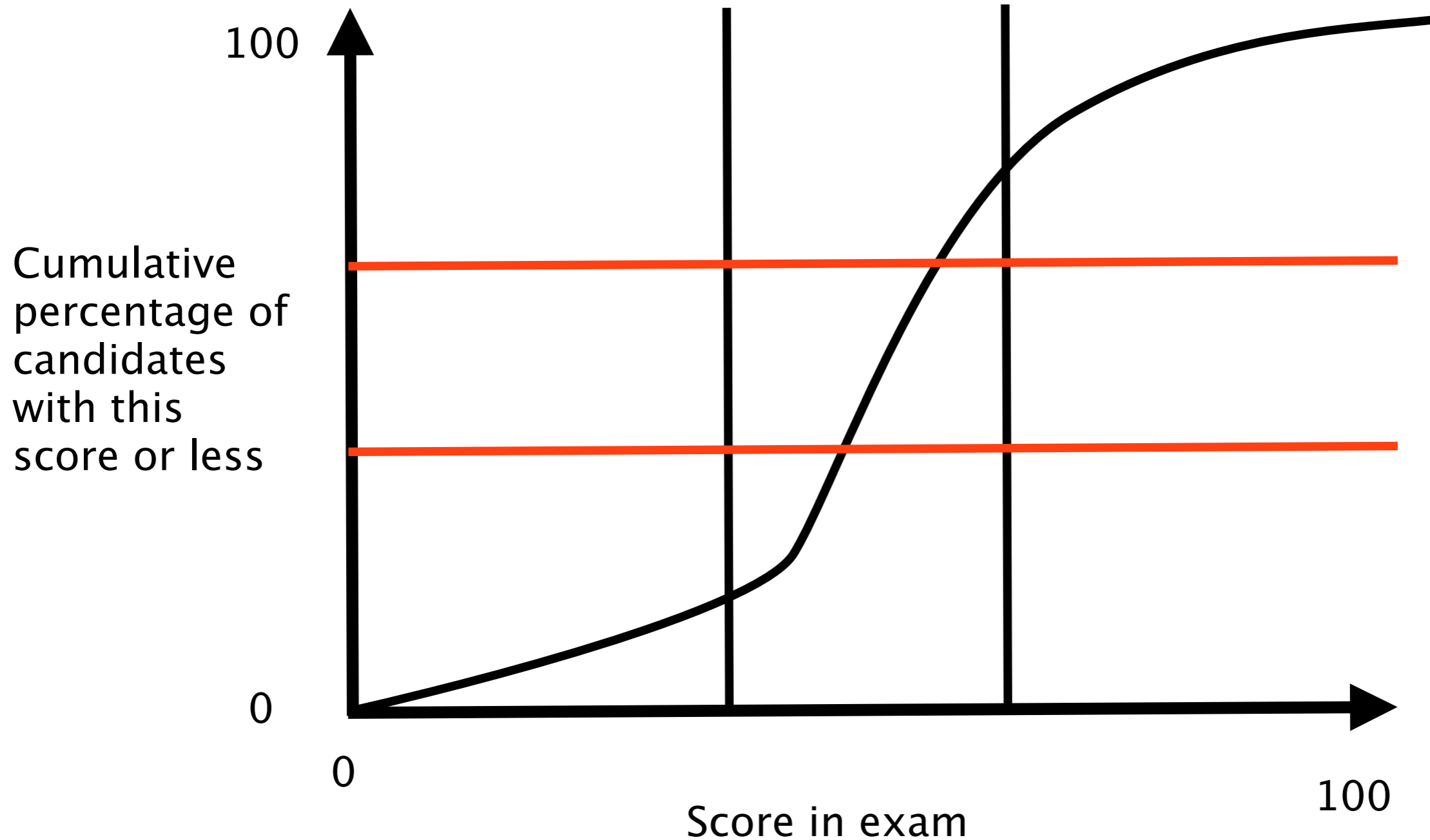
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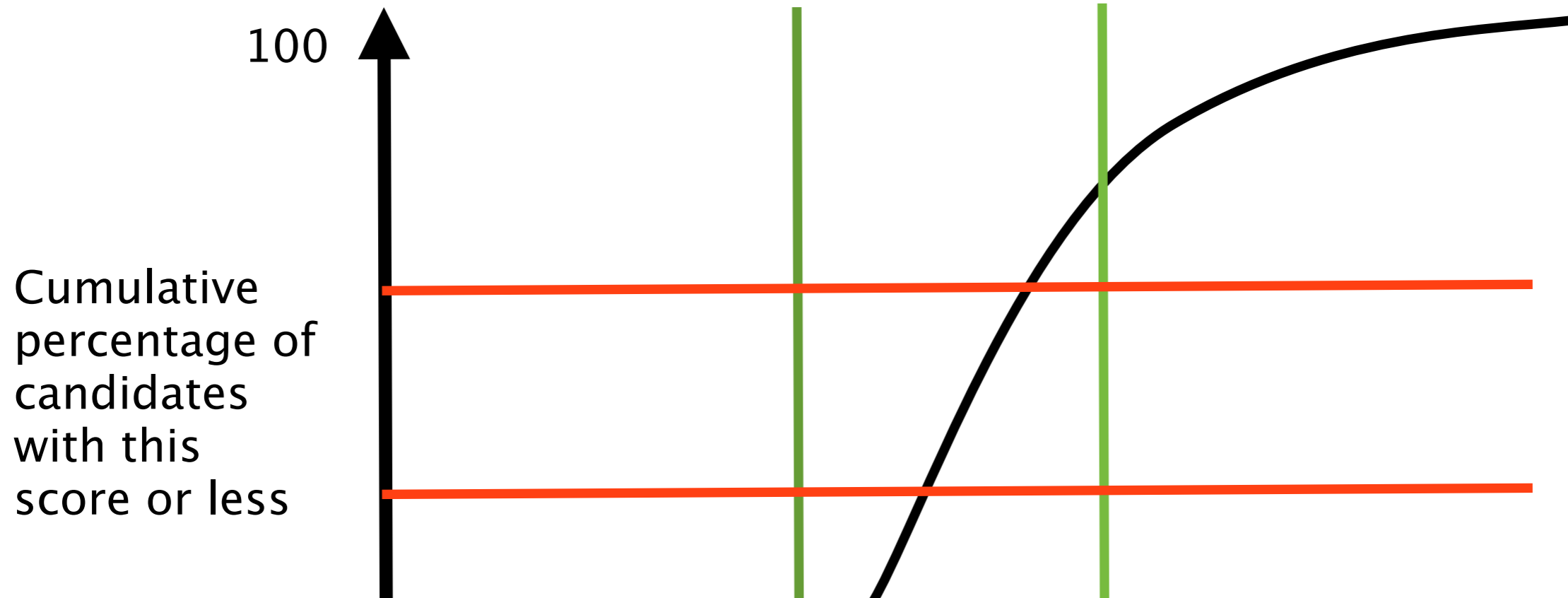
MCQ: Setting the pass mark

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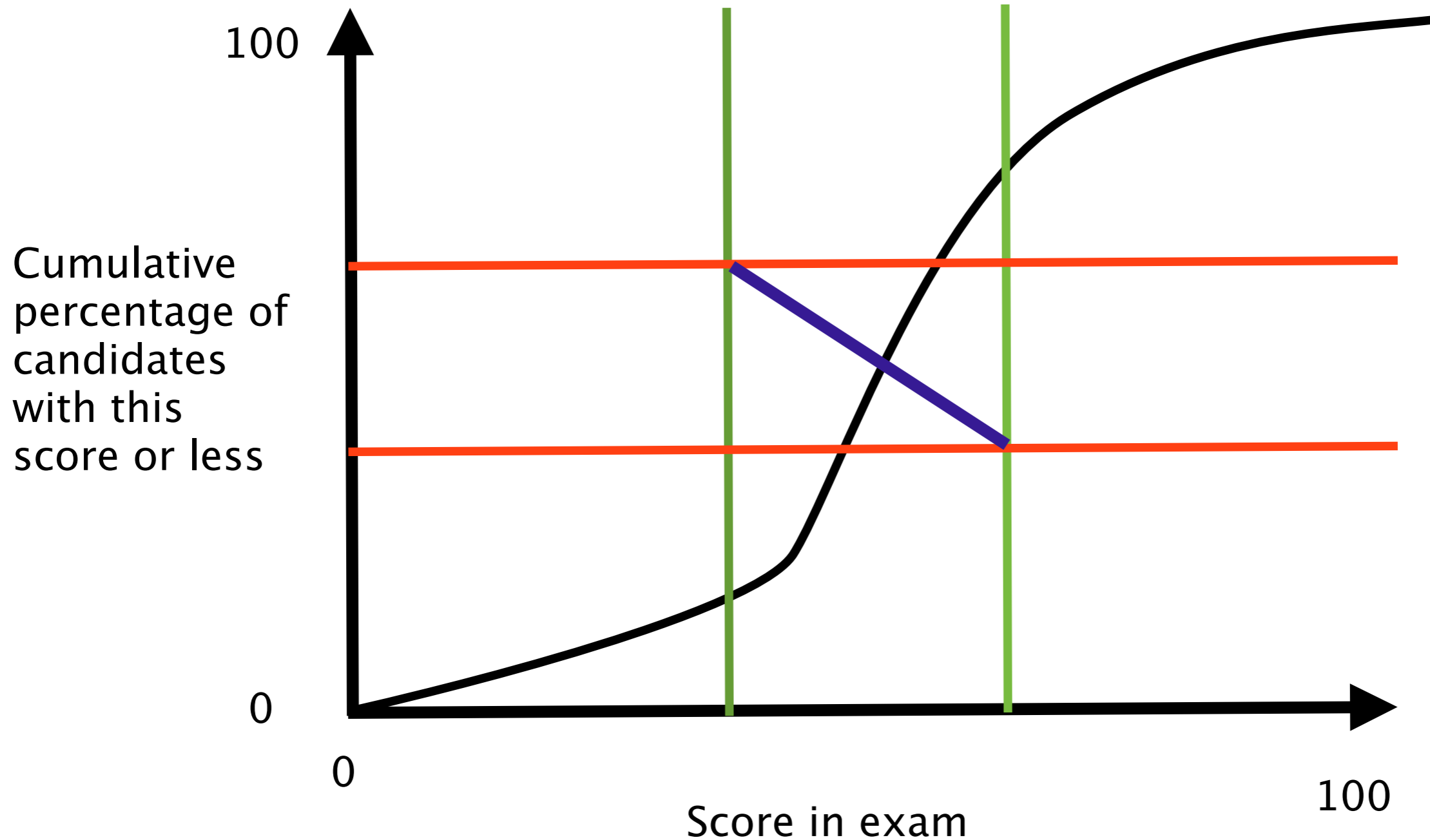Centre for Advanced Cardiovascular Imaging

Monday, 13 May 13

MCQ: Setting the pass mark

100

Cumulative percentage of candidates with this score or less

The Green lines are the minimum and maximum pass marks as predetermined by the standard setting group

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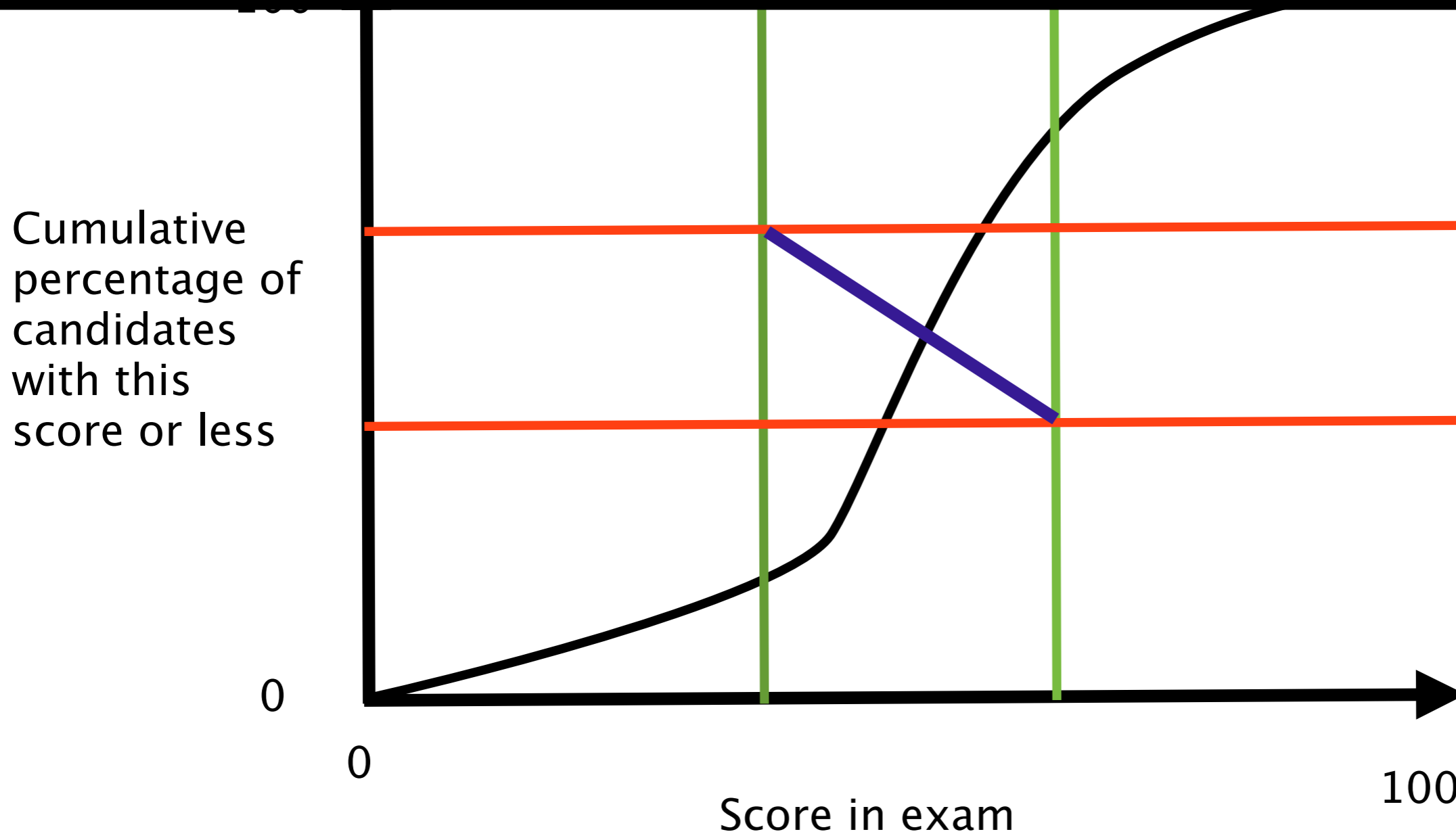Centre for Advanced Cardiovascular Imaging

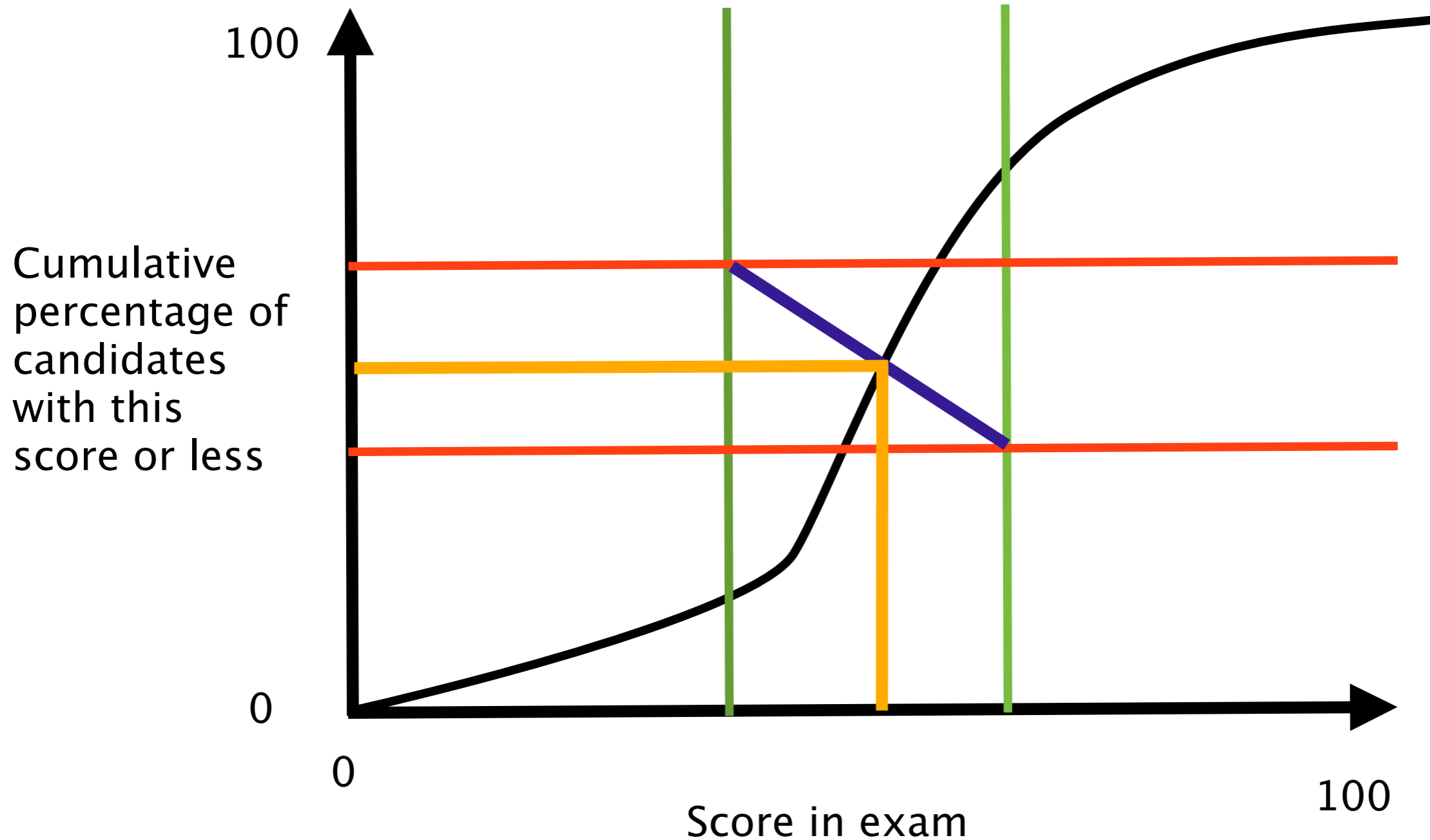# MCQ: Setting the pass mark

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MCQ: Setting the pass mark

Draw the blue line as shown

Cumulative percentage of candidates with this score or less

100

0

0

Score in exam

100

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MCQ: Setting the pass mark

Cumulative percentage of candidates with this score or less

Score in exam

0

100

0

100

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MCQ: Setting the pass mark

Cumulative percentage of candidates with this score or less

100

0

0

100

Passmark

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MCQ: Setting the pass mark

Cumulative f score or less

Passrate

Passmark

100

0

0

100

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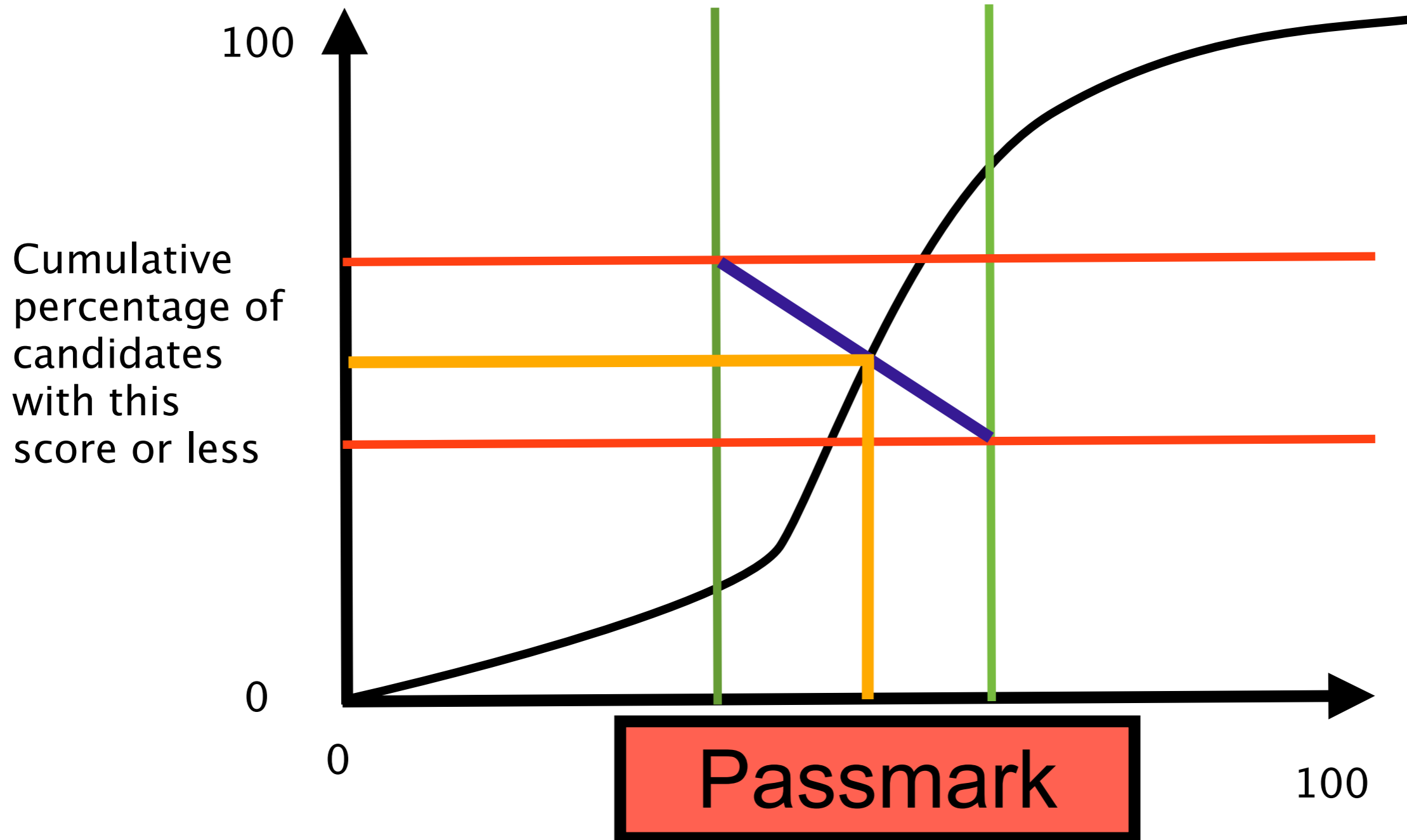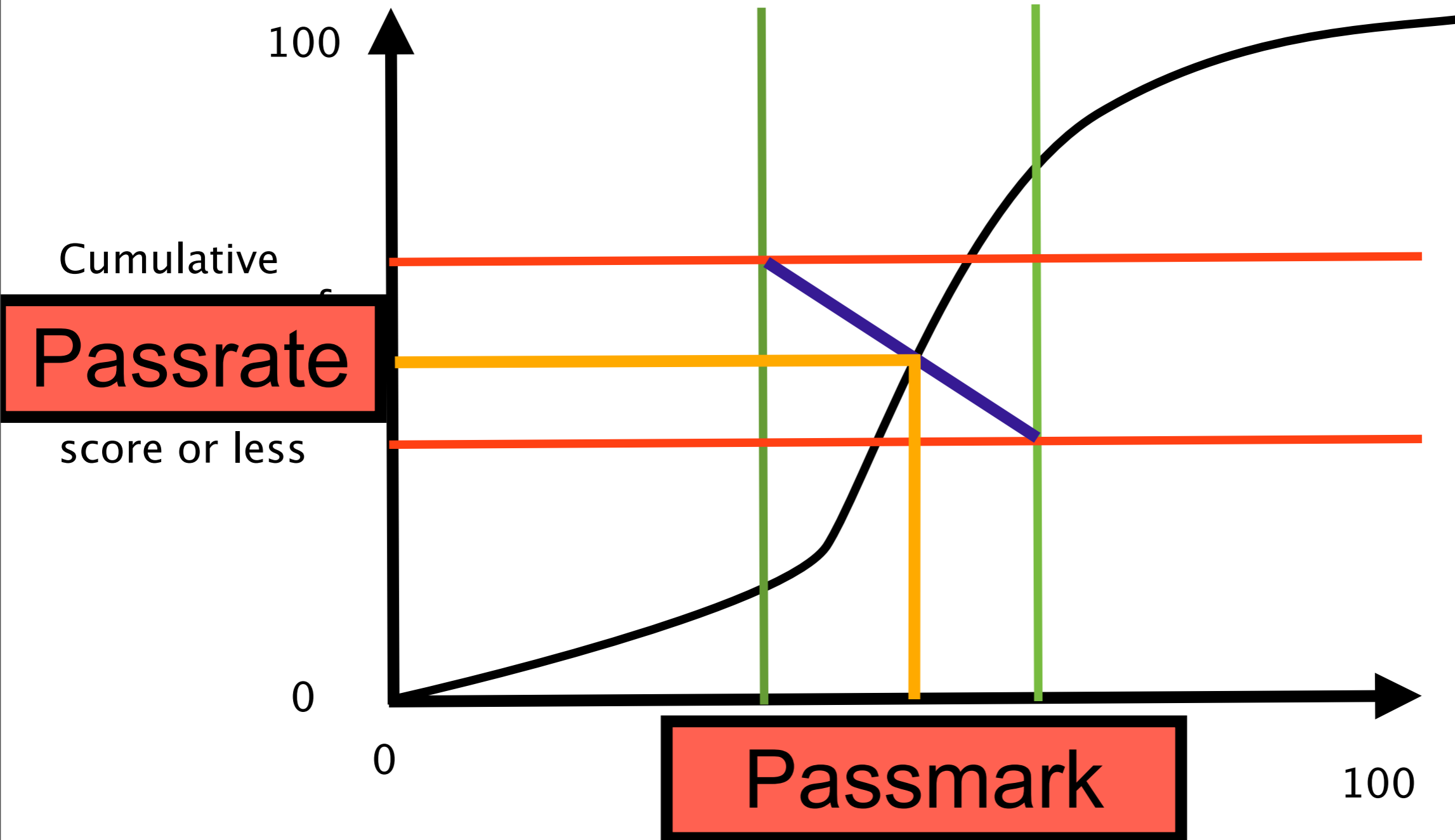
MCQ: Technical

- Standardised lexicon
- Standardised punctuation
- Avoid absolutes
  - Always, never etc
- Standard format
  - History
  - Examination etc
- No abbreviations

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MCQ: Writing questions

- Individuals write
- Need a review group
- Standardised punctuation
- Face to face meetings best
  - Questions written beforehand
- Ensure adequate refreshments!
- Categorise the questions
- Electronic template

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MCQ: Set the exam

- Exam setting group
  - Usually smaller
- Select questions from bank
  - Ensure the cover curriculum!
- Old questions
  - Longitudinal data
- Structure should be transparent

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MCQ: Summary

- MCQ writing group
- Exam setting group
- Standard setting group

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MCQ: Example 1

- A 32 year old woman presents to the emergency department with a 3 day history of cough and increasing shortness of breath. On examination she has a respiratory rate of 30 breaths per minute and there is an audible expiratory wheeze.

- What is the most likely diagnosis?

- A) Acute exacerbation of asthma

- B) Diabetic ketoacidosis

- C) Hypothyroidism

- D) Myocardial infarction

- E) Uncontrolled hypertension

MCQ: Example 2

- A 78 year old man presents to the emergency department with sudden onset chest pain of 2 hours duration with associated nausea. On examination he is cold and sweaty. His pulse rate is 65 beats per minute and his blood pressure is 125/80 mmHg. A resting electrocardiogram shows ST segment elevation across the anterior chest leads (V1-V5)
- What is the most likely diagnosis?
- A) Acute exacerbation of asthma
- B) Diabetic ketoacidosis
- C) Hypothyroidism
- D) Myocardial infarction
- E) Uncontrolled hypertension

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MCQ: Example 3

- A 65 year old man presents to the A/E with sudden onset chest pain of 2 hours duration. O/E pulse 65 and BP 110/75. An ECG shows STEMI.

- Which of the following is NOT appropriate?

- A) Aspirin and Heparin

- B) Aspirin, heparin, Hydrocortisone and antibiotics

- C) Oxygen

- D) Plavix

- E) thrombolysis

MCQ: Example 4

- Which of the following is true in severe AS?
- A) It is always associated with a bicuspid aortic valve
- B) TAVI is never a treatment
- C) The incidence in Smith et al (1997) is 1.36%
- D) May present as angina
- E) All of the above

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- Lara weighs 4Kg. She has an order for Ampicillin Sodium 580mg every 6 hours. What is her daily dose of Ampicillin as ordered?

- A) 580mg

- B) 1160mg

- C) 1740mg

- D) 2320mg

- E) 2900mg

Conclusion

- Background
- The MCQ
  - Why MCQ's
  - Writing
  - Examinations
  - Examples