

Mathematics

3 Points — 1st Exam

Instructions for examinees

א. Duration of the exam: One and a half hours

ב. Exam structure and breakdown of points:

This exam has six questions.

Each question is worth 25 points.

You may answer as many questions as you like, but the maximum number of points you can earn is 100.

ג. Material that may be used during the exam:

(1) A non-graphing calculator. Do not use the programming options of a programmable calculator.

Use of a graphing calculator or programming options may lead to the disqualification of your exam.

(2) Formula sheets (attached).

(3) A Hebrew-foreign language / foreign language-Hebrew dictionary.

ד. Special instructions:

(1) **Write all of your calculations and answers in the Hebrew exam booklet.**

Do not write in the shaded margins.

(2) Explain all of your work, including calculations, in detail and in a clear and organized fashion.

Lack of detail may lower your score or lead to the disqualification of your exam.

(3) For draft paper, use pages in the **Hebrew exam booklet**.

If you use other draft paper, your exam may be disqualified.

Note: At the back of the Hebrew exam booklet there is draft paper for you to use. Do not add any other paper to the exam booklet.

מתמטיקה

3 יחידות לימוד — שאלון ראשון

הוראות לנבחן

א. משך הבחינה: שעה וחצי.

ב. מבנה השאלון ומפתח ההערכה:

בשאלון זה שש שאלות.

כל שאלה — 25 נקודות.

מוותר לך לענות על מספר שאלות כרצונך,

אך סך הנקודות שתוכל לצבור לא יעלה על 100.

ג. חומר עזר מותר בשימוש:

(1) מחשבון לא גרפי. אין להשתמש באפשרויות התכנות במחשבון הניתן לתכנות.

שימוש במחשבון גרפי או באפשרויות התכנות במחשבון עלול לגרום לפסילת הבחינה.

(2) דפי נוסחאות (מצורפים).

(3) מילון עברי-לועזי/לועזי-עברי.

ד. הוראות מיוחדות:

(1) **כתוב את כל החישובים והתשובות בנוסח העברי של השאלון.**

אסור לכתוב על הפסים שבשוליים.

(2) הסבר את כל פעולותיך, כולל חישובים, בפירוט ובצורה ברורה ומסודרת.

חסר פירוט עלול לגרום לפגיעה בציון או לפסילת הבחינה.

(3) לטייטה יש להשתמש בדפים שבנוסח העברי של השאלון.

שימוש בטייטה אחרת עלול לגרום לפסילת הבחינה.

שים לב: בסוף הבחינה מצורפים דפי טייטה לשימושך. אין להוסיף דפים אחרים למחברת הבחינה.

Good Luck!

בהצלחה!

Questions

This exam has six questions. A complete answer is worth 25 points.

You may answer as many questions as you like, completely or partially, but the maximum number of points that you can earn is 100.

Write all of your calculations and answers in the Hebrew exam booklet.

Note: Explain all of your work, including calculations, clearly and in detail.

Lack of detail may lower your score or lead to the disqualification of your exam.

Algebra

1. The price of a shirt is 60 shekels less than the price of a dress.

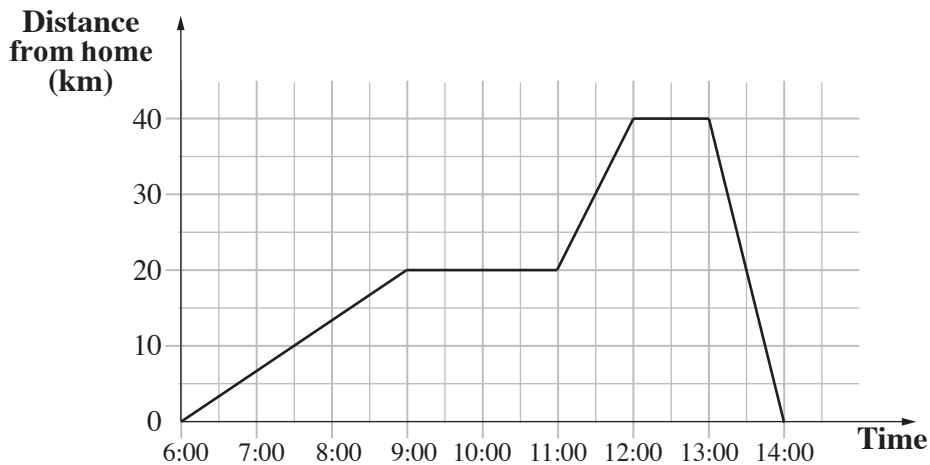
א. Use x to denote the price of a dress, and express the price of a shirt in terms of x .

ב. Alona bought 4 shirts and 3 dresses, and paid a total of 810 shekels.

What is the price of a dress?

2. A cyclist left his house and began cycling.

The graph below describes the cyclist's distance from home as a function of time.



Use the graph to answer Items א-ה.

- א. What distance was the cyclist from home at 11:30?
- ב. At what times was the cyclist 10 km away from home?
- ג. How many times did the cyclist take a break, and how long was each break?
- ד. How many kilometers did the cyclist travel between 13:00 and 14:00?
- ה. From what time until what time was the cyclist's speed the greatest?

3. A movie theater screens one movie a day, Sunday through Friday.

52 tickets were sold for Sunday's movie. On each subsequent day, 7 more tickets were sold for that day's movie than were sold for the movie on the previous day.

- א. How many tickets were sold for Wednesday's movie?
- ב. On what day were 87 tickets sold?

4. In Triangle ABC, Point A is located on the y-axis, and Point B is located on the x-axis (see figure).

The equation of the line AB is $y = -3x + 12$.

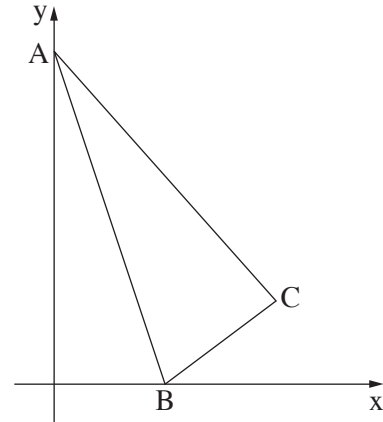
- א. Find the coordinates of Points A and B.

The slope of the line BC is 0.75.

- ב. Find the equation of the line BC.

The x-coordinate of Point C is 8.

- ג. Find the y-coordinate of Point C.

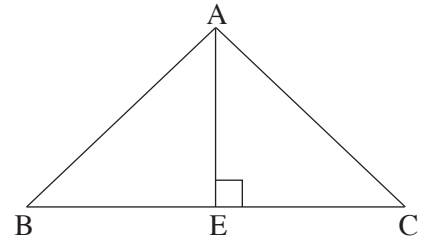


Trigonometry

5. ABC is an isosceles triangle ($AB = AC$).
AE is a height in Triangle ABC (see figure).

Given: $AB = 11$ cm , $BC = 16$ cm .

- א. Calculate the size of Angle ABC.
ב. Calculate the length of Height AE.
ג. Calculate the area of Triangle AEC.



Probability and Statistics

6. Two fair dice [קוביות משחק הוגנות] are rolled once, and the sum of the numbers obtained is calculated.

א. Below is a table of the possible results. In each empty box of the table write the sum of the numbers obtained when the dice are rolled.

Dice A \ Dice B	1	2	3	4	5	6
1						
2						
3						
4						
5						
6						

- ב. What is the probability that the sum of the numbers is 2?
- ג. What is the probability that the sum of the numbers is less than 4?
- ד. What is the probability that the sum of the numbers is an even number? Explain.

Good Luck!

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בהצלחה!

זכות היוצרים שמורה למדינת ישראל
אין להעתיק או לפרסם אלא ברשות משרד החינוך