

Mathematics

3 Points — First Questionnaire

מ ת מ ט י ק ה

3 יחידות לימוד — שאלון ראשון

הוראות לנבחן

Instructions for examinees

א. Duration of the exam: One hour and 15 minutes

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. You may not use the programming options of a programmable calculator. Use of a graphing calculator or programming options may lead to the disqualification of the 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 test booklet.**

(2) For draft paper, use pages in the test booklet (including those at the end of the booklet) or paper you receive from the proctors. Use of other draft paper may lead to the disqualification of the exam.

(3) 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 the exam.

Note! You may answer in your mother tongue only if you have the special permission slip with you.

א. משך הבחינה: שעה ורבע.

ב. מבנה השאלון ומפתח ההערכה:

בשאלון זה שש שאלות.

כל שאלה — 25 נקודות.

מותר 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**

בגוף השאלון.

(2) לטייטה יש להשתמש בדפים שבגוף השאלון

(כולל הדפים שבסופו) או בדפים שקיבלת

מהמסגיחים. שימוש בטייטה אחרת עלול

לגרום לפסילת הבחינה.

(3) הסבר את כל פעולותיך, כולל חישובים,

בפירוט ובצורה ברורה ומסודרת.

חוסר פירוט עלול לגרום לפגיעה בציון או

לפסילת הבחינה.

Good Luck !

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בהצלחה !

/המשך מעבר לדף/

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 test booklet.

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

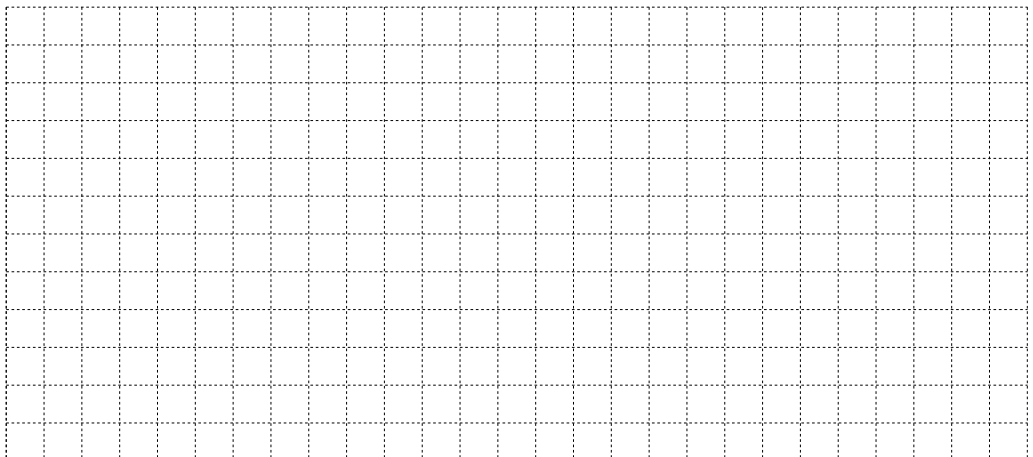
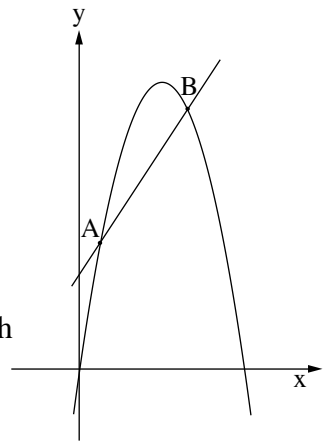
Lack of detail may lower your score or lead to the disqualification of the exam.

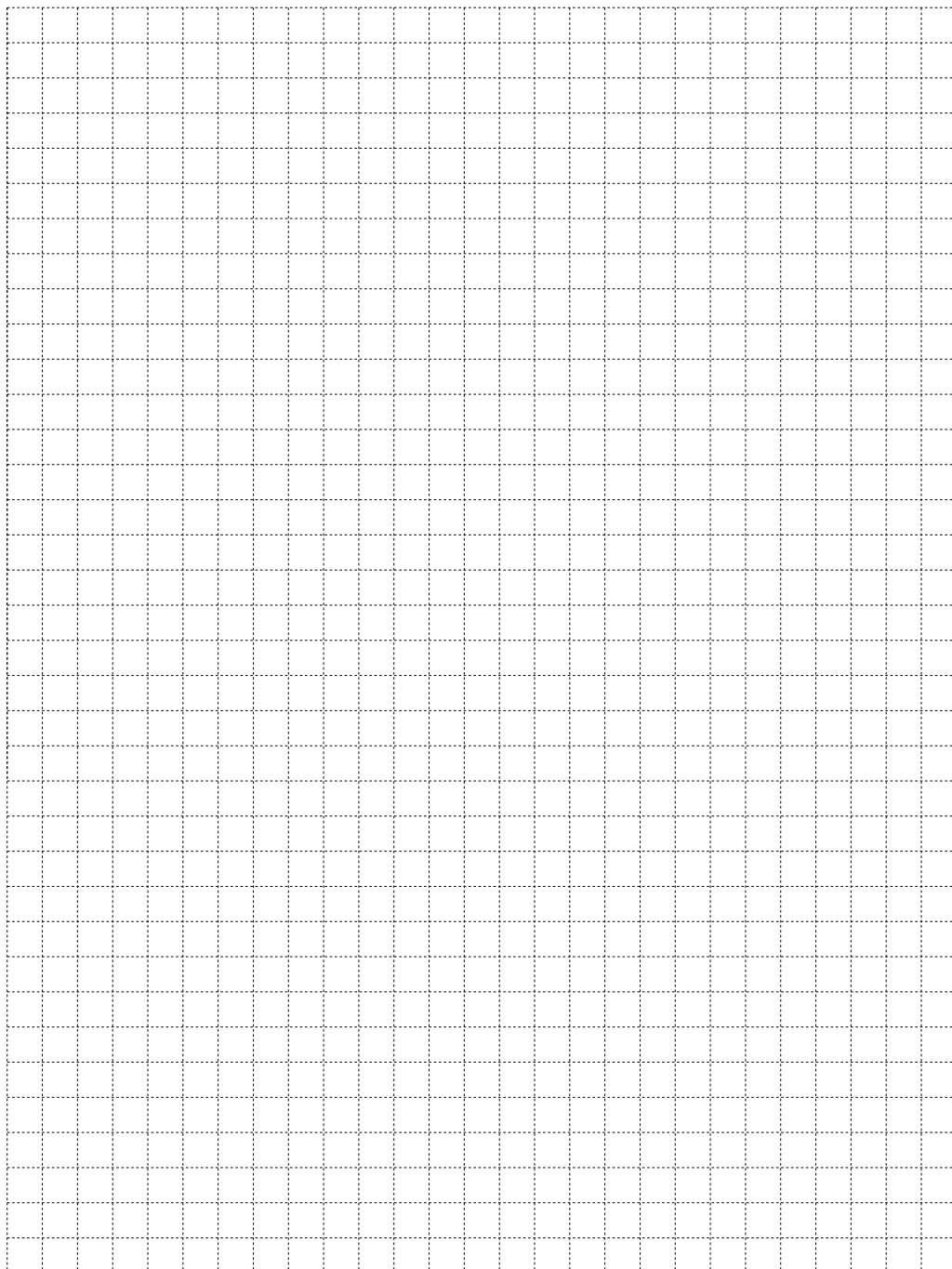
Algebra

1. The line $y = x + 4$ and the function $y = -x^2 + 6x$ are shown in the figure to the right.

A and B are the points at which the parabola and the line intersect.

- א. (1) Find the coordinates of Points A and B.
(2) Give an example of a value of x for which the line is located below the parabola.
- ב. (1) Find the points at which the parabola intersects the x -axis.
(2) Find the interval over which the parabola is positive.





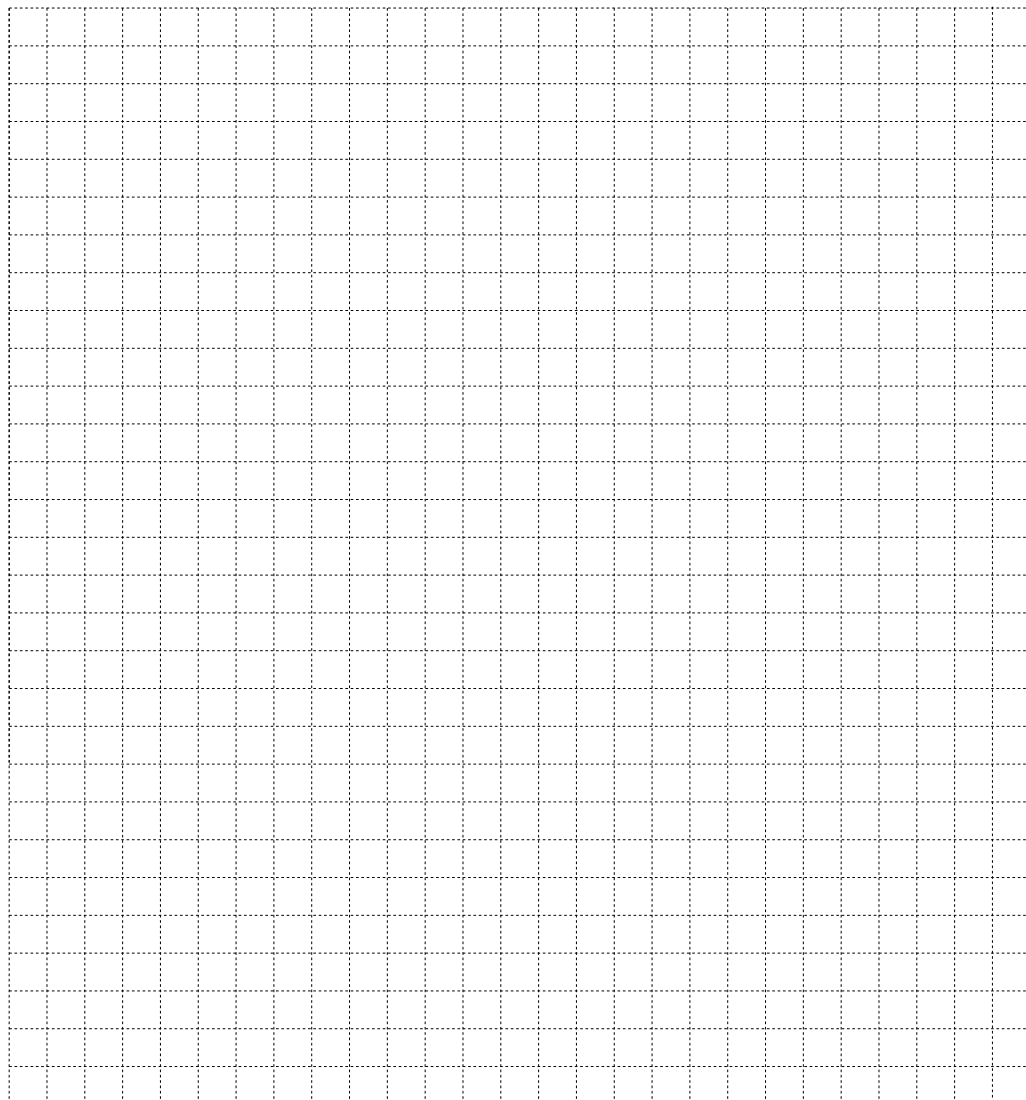
2. Yosef's salary was 960 shekels higher than David's salary.

After David's salary was increased by 10%, Yosef and David received the same salary.

א. Use x to indicate David's initial salary.

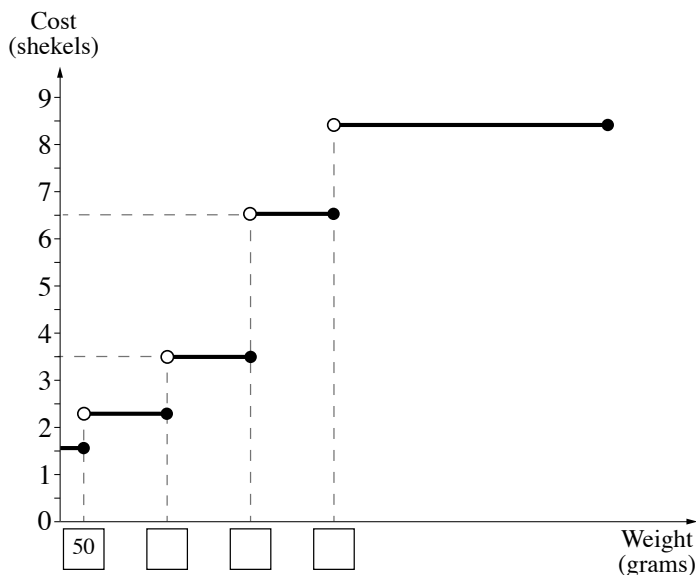
Express Yosef's salary in terms of x .

ב. Calculate David's initial salary.





3. The graph below shows the price of a stamp for a regular letter sent within Israel, according to the weight of the letter.



- ⋈. Fill in the three values missing from the table below, based on the information in the graph. Write the appropriate values in the squares on the weight axis of the graph.

Weight Range (grams)	Up to 50		201-350	351-500	501-1000
Price (shekels)	1.60	2.30			8.40

- Ⓐ. Yossi needs to send a letter that weighs 410 grams. How much will it cost him?
- Ⓐ. What is the greatest price difference between two neighboring weight ranges?
- Ⓐ. Racheli wants to send two documents that each weigh 30 grams. How much money will she save if she sends the documents in one envelope instead of two separate envelopes?



4. The figure to the right shows a sketch of two lines, I and II.

Three equations are given, (א), (ב) and (ג) :

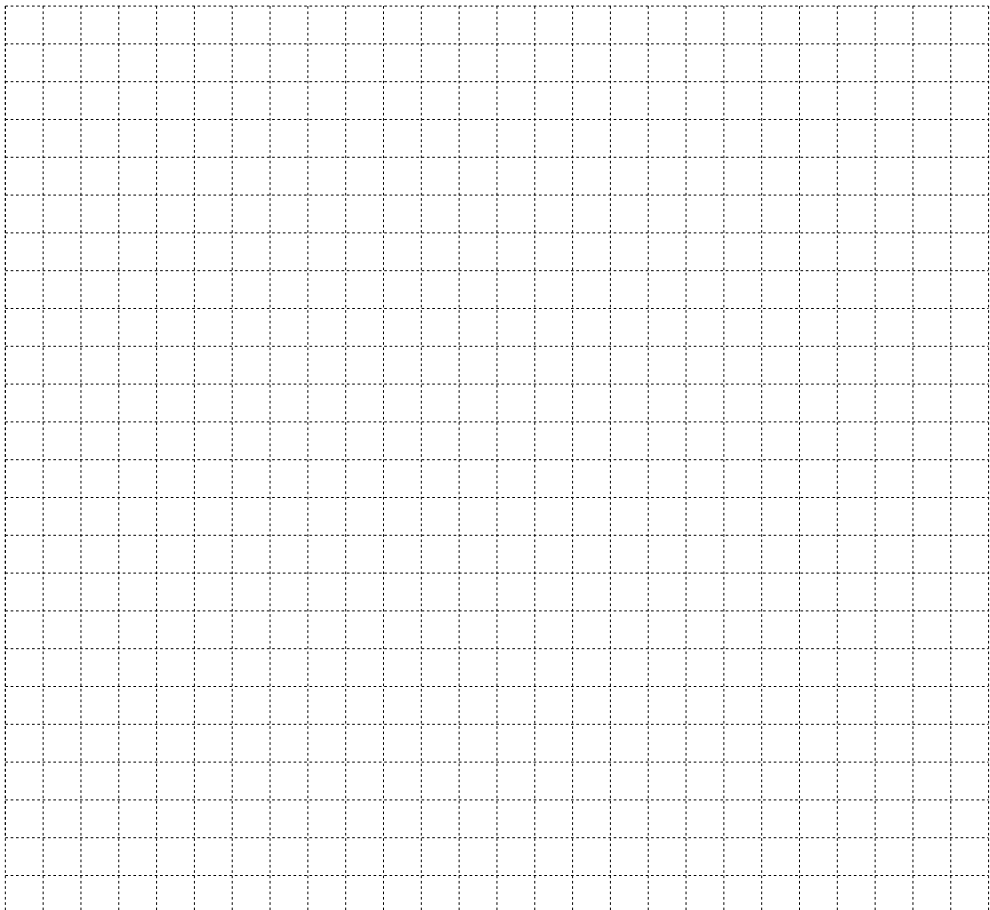
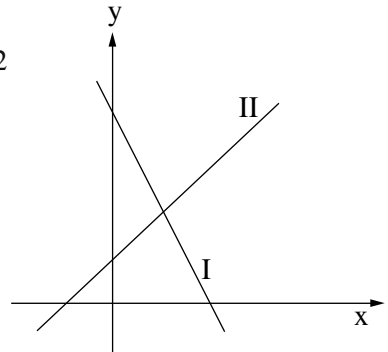
(א) $y = 2x + 8$ (ב) $y = -2x + 8$ (ג) $y = x + 2$

א. For each of the lines, I and II, find the corresponding equation from among the equations (א), (ב) and (ג).

Explain your answer.

ב. Find the coordinates of the point at which Lines I and II intersect.

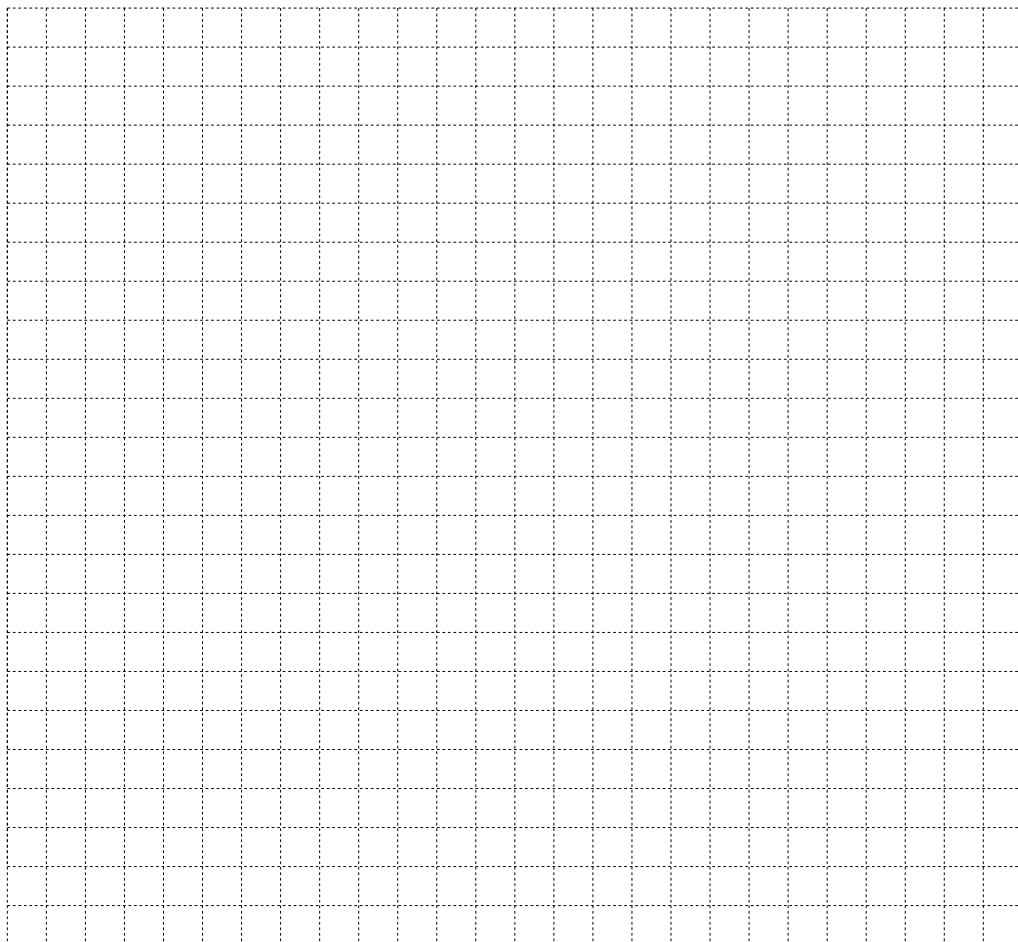
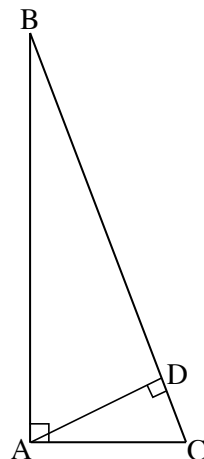
ג. Find the equation of the line that passes through the point (5, 2) and is parallel to Line II.





Trigonometry

5. In the right triangle ABC ($\angle A = 90^\circ$), the length of Side AB is 3 meters and the length of Side AC is 60 cm.
- Find the size of the angle $\angle ABC$.
 - AD is the height to the hypotenuse in Triangle ABC. Calculate the length of AD.
 - Calculate the area of Triangle ABC.





Statistics

6. The table below shows the distribution of the number of children per family in a certain kibbutz.

Number of children per family	0	1	2	3	4	5
Frequency — number of families	7	9	10	?	8	2

- א. The relative frequency of families with 2 children is 20%.
How many families are there in the kibbutz?
- ב. How many families in the kibbutz have 3 children?
- ג. On average, how many children are there in each family in the kibbutz?
- ד. What is the median [חציין] number of children per family in the kibbutz?



Good Luck!

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בהצלחה!

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

/Extra notebook pages are attached./



