

SAMPLE EXAM QUESTIONS:

Algebra I – Sample Subject Exam Questions

1. Solve for x :

$$\frac{2x-5}{3} + 4 = \frac{x+7}{2}$$

Walk through your steps clearly and check your solution.

2. Factor completely:

$$2x^2 - 7x - 4$$

Explain your method (factoring by grouping, trial and error, etc.).

3. Graph the following linear inequality:

$$y > -\frac{1}{2}x + 3$$

Describe the boundary line, shading, and test point. What real-world scenario might this model?

4. A company makes a profit of \$4 per item after paying a fixed monthly cost of \$600. Write an equation to model this situation, then determine how many items they must sell to break even.

5. Solve the system of equations using substitution or elimination:

$$3x + 2y = 12$$

$$x - y = 4$$

Which method is more efficient here, and why?

6. Who was Rabbi Avraham bar Chiyya, and why is he considered a pioneer in Jewish mathematics?

Discuss his authorship of Sefer ha-Mispar and how it made algebra accessible in Hebrew.

7. What was the Vilna Gaon's view on secular sciences like math and astronomy?

Explain how he saw them as tools to enhance Torah learning and understanding of Hashem's creation.

Chumash – Sample Subject Exam Questions

1. List the parshiyot (weekly Torah portions) of the book of Devarim.
2. To which book of the Torah does *Parshat Ha'azinu* belong?
What is unique about the structure and message of this parsha?
3. Explain Rashi's (OBM)* commentary on the word "בראשית" in the first *pasuk* of the Torah.
What issue is Rashi (OBM) addressing, and what lesson does he derive?
4. Compare the leadership of Yosef HaTzaddik (OBM) and Moshe Rabbeinu (OBM).
How did each respond to personal and national challenges, and what can we learn from their examples?
5. On the *pasuk* "וַיַּעַשׂ אָדָם בְּצִלְמֵנוּ כְּדִמּוּתֵנוּ" (Bereisheet 1:26), how do Rashi (OBM) and Ramban (OBM) differ in their explanations?
What issue is raised by the plural form, and how does each commentator address it?
6. How does the Torah present the concept of *teshuvah*?
Give an example from a character in Chumash who demonstrates sincere change.
7. Bilam came to curse Bnei Yisrael, but ended up blessing them.
Choose one of his blessings and explain how its poetic structure and word choice reveal a deeper truth about the Jewish people.

*OBM – Of Blessed Memory