

Writing Equations Study Guide

Show ALL WORK for the following questions on a separate sheet of paper. Write your final answers on this document.

1. Write the equation of a line in **slope-intercept form** that contains the point $(-2,3)$ and has a slope of 4.
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2. Write the equation of a line in **slope-intercept form** that contains the point $(3,4)$ and has a slope of $\frac{1}{3}$.
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3. Write the equation of a line in **slope-intercept form** that contains the points $(-2,4)$ and $(1,-5)$.
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4. Write the equation of a line in **slope-intercept form** that contains the points $(2,6)$ and $(-2,4)$.
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5. Write the equation of a line in **slope-intercept form** that contains the point $(2,6)$ and is parallel to the equation $y = -3x - 4$.
6. Write the equation of a line in **slope-intercept form** that contains the point $(-4,3)$ and is parallel to the equation $x + 4y = -4$.
7. Write the equation of a line in **slope-intercept form** that contains the point $(-4,3)$ and is perpendicular to the equation $y = \frac{1}{4}x - 4$.
8. Write the equation of a line in **slope-intercept form** that contains the point $(8,-1)$ and is perpendicular to the equation $8x - 2y = 16$.
9. Jill is currently on a diet. She plans to lose 2 pounds each week. On the fourth week of her diet she weighed 124 pounds.
Write an equation in **slope-intercept form** that represents her situation.

How much would you expect her to weigh after 9 weeks of dieting?

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10. Bill is saving money to buy a brand new dirt bike. He plans to deposit \$24 of his weekly salary into his bank account. After 12 weeks, he has saved \$1,243. How much money did he start with in his bank account?

The dirt bike costs \$1,579. After how many weeks will he be able to buy the bike?

11. Once an oak tree is planted, it continues to grow at a constant rate for the first year of its life. Mr. Manning's students measured the height of the oak tree and found that two weeks after it was planted, the tree was 6 feet tall. Ms. Ross's students measured the height after seven weeks and found that the tree was 16 feet tall. Write an equation in **slope-intercept form** that represents the height of the tree.

Ms. Floyd's students have the task of predicting what the height of the tree will be after 5 months (assume there are 4 weeks in a month). How tall will the tree be after 5 months?

12. Studies have shown that a person's annual salary is directly related to the number of years of education that person has. A person with one year of education is expected to have a salary of \$7,000. A person with 12 years of education is expected to have a salary of \$34,500. Write an equation in **slope-intercept form** that shows the relationship between years of education, x , and a person's annual salary, y .

How many years of education does a person need in order to have an annual salary of \$62,000?

13. The number of students at Berkmar Middle School has increased at a constant rate for several years since 1995. Administrators are attempting to use the information in the table above to predict the number of students there will be in 2017. Write an equation in **slope-intercept form** that represents the given situation.

Years since 1995	# of Students
5	957
10	972
15	987
20	1002

How many students would you predict there to be in 2017?

14. Bill went for a jog and recorded his heart rate in beats per minute (bpm) as seen in the table to the right. He found the relationship between his heart rate and time was linear. What was Bill's resting heart rate (resting heart rate is one's heart rate before exercising)?

Minutes of Exercise	Heart Rate (bpm)
2	101
5	110
8	119
11	128

What would you expect Bill's heart rate to be after 33 minutes of exercise?

Writing Equations Study Guide Answer Section

SHORT ANSWER

1. ANS:
 $y = 4x + 11$

PTS: 1

2. ANS:
 $y = \frac{1}{3}x + 3$

PTS: 1

3. ANS:
 $y = -3x - 2$

PTS: 1

4. ANS:
 $y = \frac{1}{2}x + 5$

PTS: 1

5. ANS:
 $y = -3x + 12$

PTS: 1

6. ANS:
 $y = -\frac{1}{4}x + 2$

PTS: 1

7. ANS:
 $y = -4x - 13$

PTS: 1

8. ANS:
 $y = -\frac{1}{4}x + 1$

PTS: 1

9. ANS:
 $y = -2x + 132$

114 lbs

PTS: 1

10. ANS:

$b = \$955$
26 weeks

PTS: 1

11. ANS:
 $y = 2x + 2$
42 feet

PTS: 1

12. ANS:
 $y = 2500x + 4500$

23 years

PTS: 1

13. ANS:
 $y = 3x + 942$

1,008 students

PTS: 1

14. ANS:
95 bpm

194 bpm

PTS: 1