|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Knowledge** | **Application** | **Communication** | **Thinking** | **Total** |
|  / 19 |  / 15 |  /6  |  / 12 |  /52 |

Helpful Stuff:

The equation of a line: The slope formula:

**Knowledge and Understanding (19 marks)**

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**1.** Plot and label points A 🡪 D on the grid provided.
Write the coordinates of points E🡪 H. ➃

E

 A (3, 4) E

 B (0, 4) F

F

 C (3, -4) G

 D (65, 0) H

H

G

2) Three line segments have been plotted on this graph. Determine the slope of these line segments using rise over run. ➂



Line B

Line A

Line C

**3.** For each equation of a line, state the slope (m) and the y-intercept (b). ➅

|  |  |  |
| --- | --- | --- |
| Line | Slope | Y-intercept |
|  |  |  |
|  |  |  |
|  |  |  |

**4.** Determine the slope of the line between the points given using ➁ each.

 **a)** (2, 2) and (6, 7) **b)** (−2, 10) and (5, 15) c) (4, 8) and (9, 5)

**Applications (15 marks)**

5. Graph each line on the grid provided. ➁ each.

 a) m=\_\_\_\_\_\_\_\_\_\_

 b=\_\_\_\_\_\_\_\_\_\_

 b) m=\_\_\_\_\_\_\_\_\_\_

 b=\_\_\_\_\_\_\_\_\_\_

6. Draw AND find the **equation** in **y = mx + b** form of the lines that satisfy the following properties. Use the provided grid to help. ➂ each.

a) With a slope of , through (6, 8) b) Through the points (3, 2) and (6, -2)

Equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7. Bort works as an online tutor. He gets paid 30$ per hour, and gets $10 at the end of the night for filling in a nightly report. ➄

a) Complete this table of values showing Bort’s total earnings for up to 4 hours serving.

|  |  |
| --- | --- |
| h |  |
| 0 | 10 |
| 1 |  |
| 2 |  |
| 3 |  |
| 4 |  |



b) Graph Bort’s earnings, and draw the line!

c) If “y” represents Bort’s earnings, and “x” represents the number of hours he worked, state an equation for the graph you made. ➁

Equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Communication (6 marks)**

8. The graph below represents the amount of money that Bryden has in a savings account that his parents made for him.

a) How much did Bryden’s parents deposit initially? ➀

b) How much does Bryden’s parents deposit into the account each month? ➀

c) Determine how much Bryden would have in his bank account after 2 full years. Explain your reasoning, or provide relevant calculations. ➁

9.Phil was using algebra to solve the following problem: “Find the equation of the line with a slope of 2, through the point (8, 3)”. His attempted solution is given below:

Phil made **two mistakes** determining the equation of his line. Circle them and explain (in point form) what he did wrong. ➁

**Thinking and Problem Solving (12 marks)**

10. Asher is growing quite a lot these days. Mr. Smith has tracked his grown over the 6 weeks. After 2 weeks, he was 10.2 pounds. After 6 weeks, he was 14.6 pounds.



a) Use the slope formula to determine the slope between these two points. What does the slope mean in this particular question? ➁

b) Use algebra to determine the y-intercept of the line joining these two points. What does the y-intercept mean in this particular question? ➁

Meaning: Meaning:

c) State an equation that models this scenario: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ➀

d) How much will Asher weigh in 9 weeks? Use your equation! ➁

11. Find the **equation** in **y = mx + b** form of the line that satisfy the following properties. Solve this by making a sketch, as well as using algebra. ➄



a) With a slope of , through (8, 2) Sketch:

Equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_