Each scenario is worth 10 marks.

/40

1) It’s Asher’s turn to get a piggy bank from granny! Like Bryden’s, this piggy bank had a few coins to start with, and Mr. Smith adds loose change to it every month. 4 months after getting the piggy bank, Asher has $17.60 in his piggy bank. 9 months after getting it, Asher has $35.10.



a) Use the slope formula to determine the slope between these two points. Note that this is how much Mr. Smith puts in each month.

|  |  |  |
| --- | --- | --- |
| $$m= $$ | $$x= $$ | $$y= $$ |
| Put in your slope:*y = \_\_\_\_\_x + b* |
| Put in your point and solve for “b” |
| Equation: $y=$ \_\_\_\_\_x \_\_\_\_\_\_ |

b) Use algebra to determine the equation of the line joining these two points.

c) How much will Asher have in his piggy bank 1 year later?

d) How much will Asher have in his piggy bank 5 years later?

2) Mr. Smith had to leave his house for the day, so he left Rosie a really large bowl of water to drink out of. After 3 hours, there was 750mL left. After 7 hours, there was 450mL left.



a) Use the slope formula to determine the slope between these two points. Note that this is how much Mr. Smith puts in each month.

|  |  |  |
| --- | --- | --- |
| $$m= $$ | $$x= $$ | $$y= $$ |
| Put in your slope:*y = \_\_\_\_\_x + b* |
| Put in your point and solve for “b” |
| Equation: $y=$ \_\_\_\_\_x \_\_\_\_\_\_ |

b) Use algebra to determine the equation of the line joining these two points.

c) How much water is in the dish after 10 hours?

d) Mr. Smith returns home after 15 hours. Does Rosie have any water left?

3) Bort received a significant gift of money from his grandfather. He decides that he is going to open up a bank account with it, and that he will deposit a little bit of money into this account each month as well. 4 months later, he has $650. 7 months later, he has $800.



a) Use the slope formula to determine the slope between these two points. Note that this is how much Mr. Smith puts in each month.

|  |  |  |
| --- | --- | --- |
| $$m= $$ | $$x= $$ | $$y= $$ |
| Put in your slope:*y = \_\_\_\_\_x + b* |
| Put in your point and solve for “b” |
| Equation: $y=$ \_\_\_\_\_x \_\_\_\_\_\_ |

b) Use algebra to determine the equation of the line joining these two points.

c) How much will Bort have in 11 months?

d) How much will Bort have in 3 years?

4) Jimmy borrowed some money from his parents to buy a new gaming laptop. He has agreed to pay his parents back every month, a little bit at a time. After 3 months, he owes them $625. After 8 months, he has completely paid them back.



a) Use the slope formula to determine the slope between these two points. Note that this is how much Mr. Smith puts in each month.

|  |  |  |
| --- | --- | --- |
| $$m= $$ | $$x= $$ | $$y= $$ |
| Put in your slope:*y = \_\_\_\_\_x + b* |
| Put in your point and solve for “b” |
| Equation: $y=$ \_\_\_\_\_x \_\_\_\_\_\_ |

b) Use algebra to determine the equation of the line joining these two points.

c) What would the equation look like if Jimmy borrowed $2,000 and paid his parents back $100 every month?

d) What would the equation look like if Jimmy borrowed $1,500 and paid his parents back $175 each month?