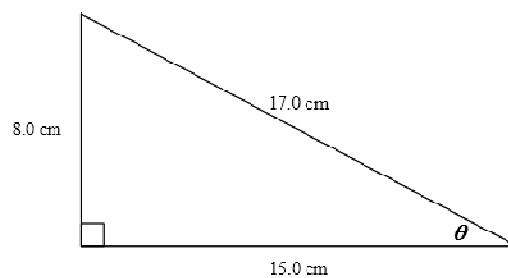
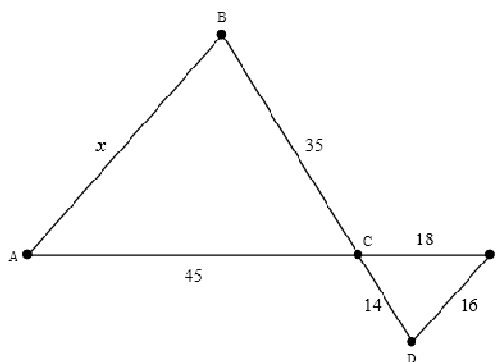


A) Trigonometry

A1) Determine the value of θ to the nearest degree.



A2) Determine the value of x .

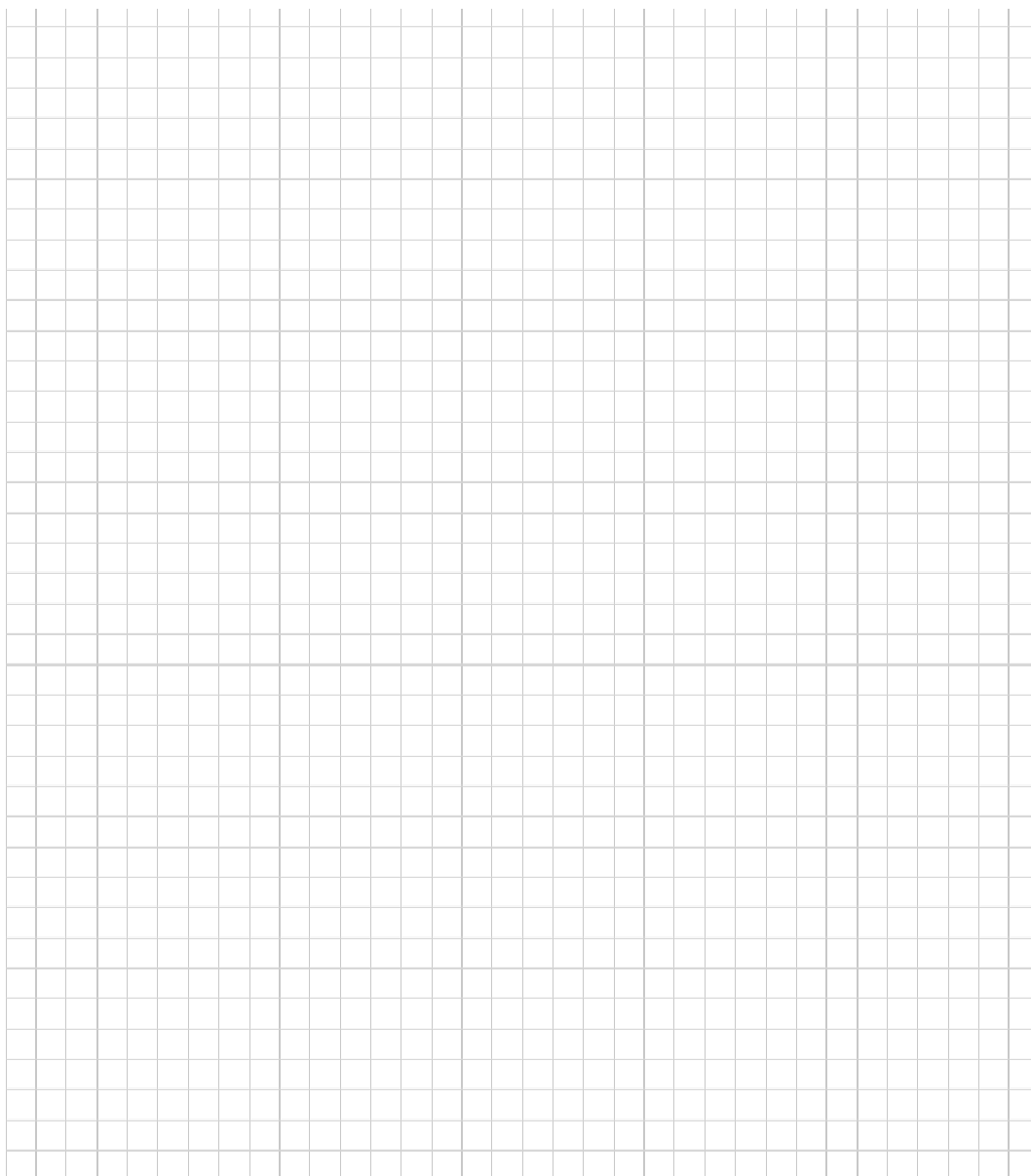


Robin forgot her homework again so she calls Scott and he tells her about it.
She has to determine the length of the third side of a non-right triangle if one of the angles is 50° and other sides are 15.0 cm and 10.0 cm

Scott forgot to tell her which angle was 50° .

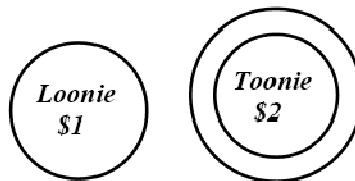
Determine all possible lengths of the third side that Robin could calculate, rounded to one decimal place.

Justify your answer.

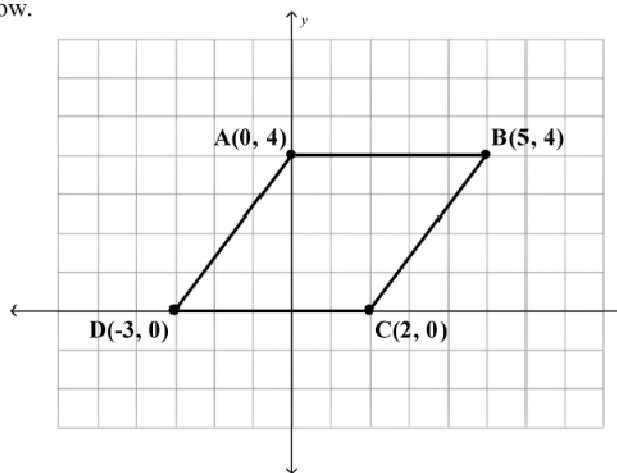


B) Analytic Geometry

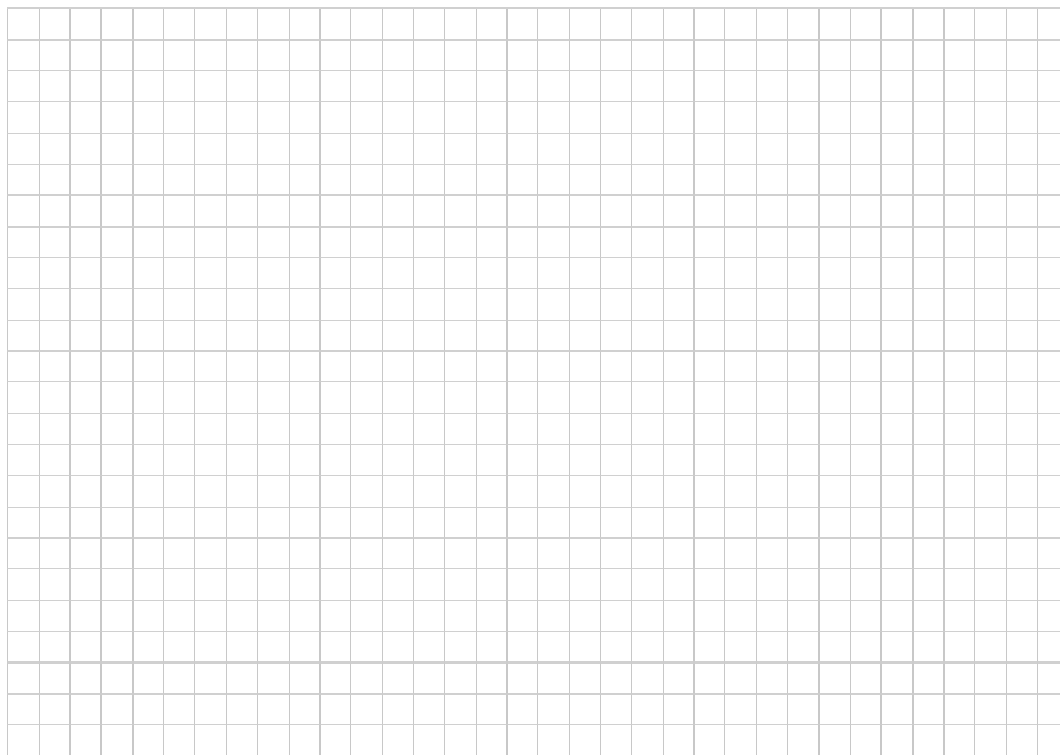
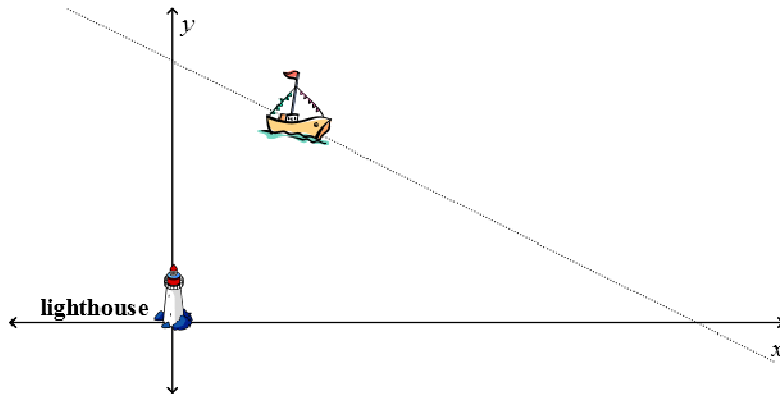
- B1) Phil has 83 coins made up of Loonies and Toonies.
 He has a total of \$137.
Determine the number of Loonies that Phil has.

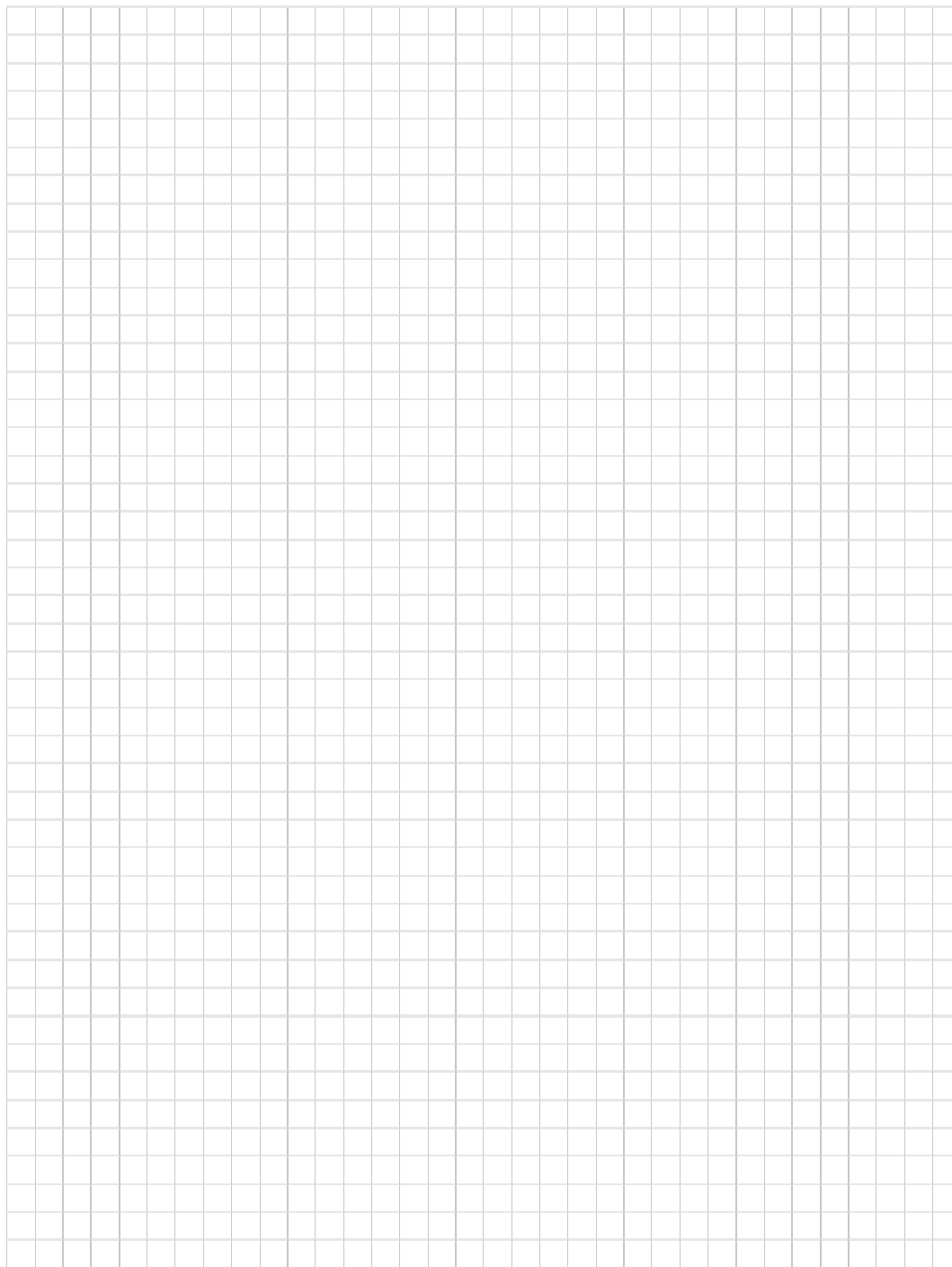


- B2) **Identify** the type of quadrilateral shown below.
Justify your answer.

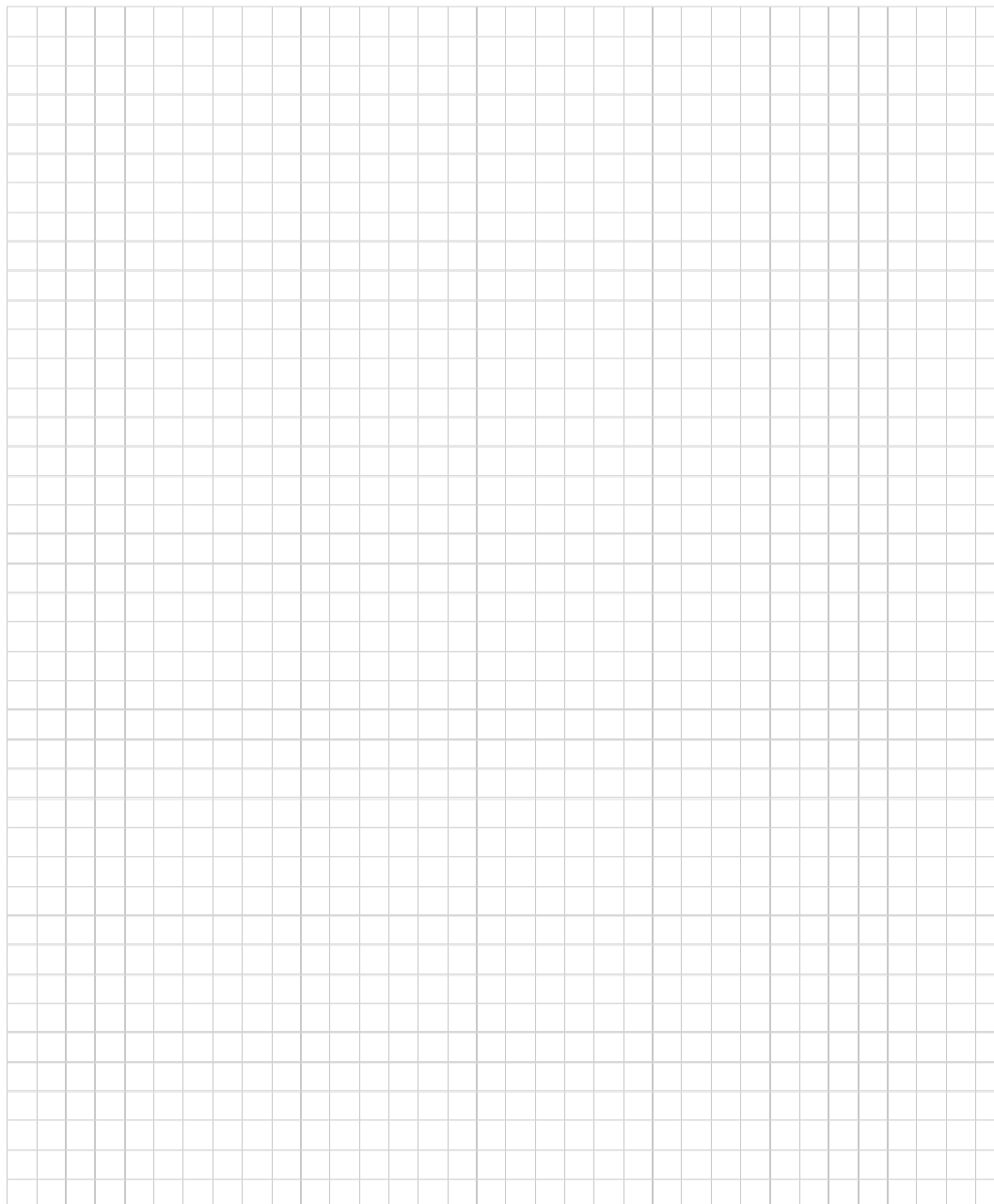


- B3) A boat is travelling on a path defined by $y = -\frac{1}{2}x + \frac{17}{2}$ where x and y are measured in kilometres.
A lighthouse, located at the origin, can detect boats up to 8 km away.
Determine if the boat gets close enough to the lighthouse to be detected.





- B4) For homework Barney is graphing the line with equation $5x + 3y = 240$. For fun, he switched the coefficients of the variables yielding the equation $3x + 5y = 240$ and noticed that the two lines crossed. Does switching the coefficients of any equation of this form result in one point of intersection? **Justify** your answer.



C) Quadratic Relations

C1) The parabola with equation $y = -2(x + 3)^2 - 4$ is moved 4 units up and 5 units to the right.

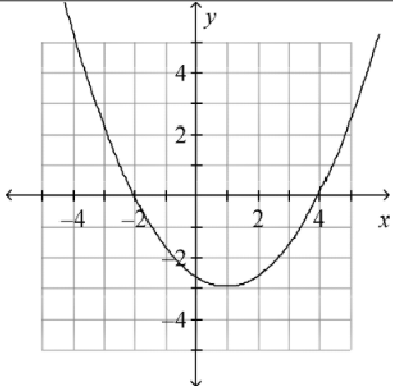
State the equation of the new parabola.

Justify your answer.

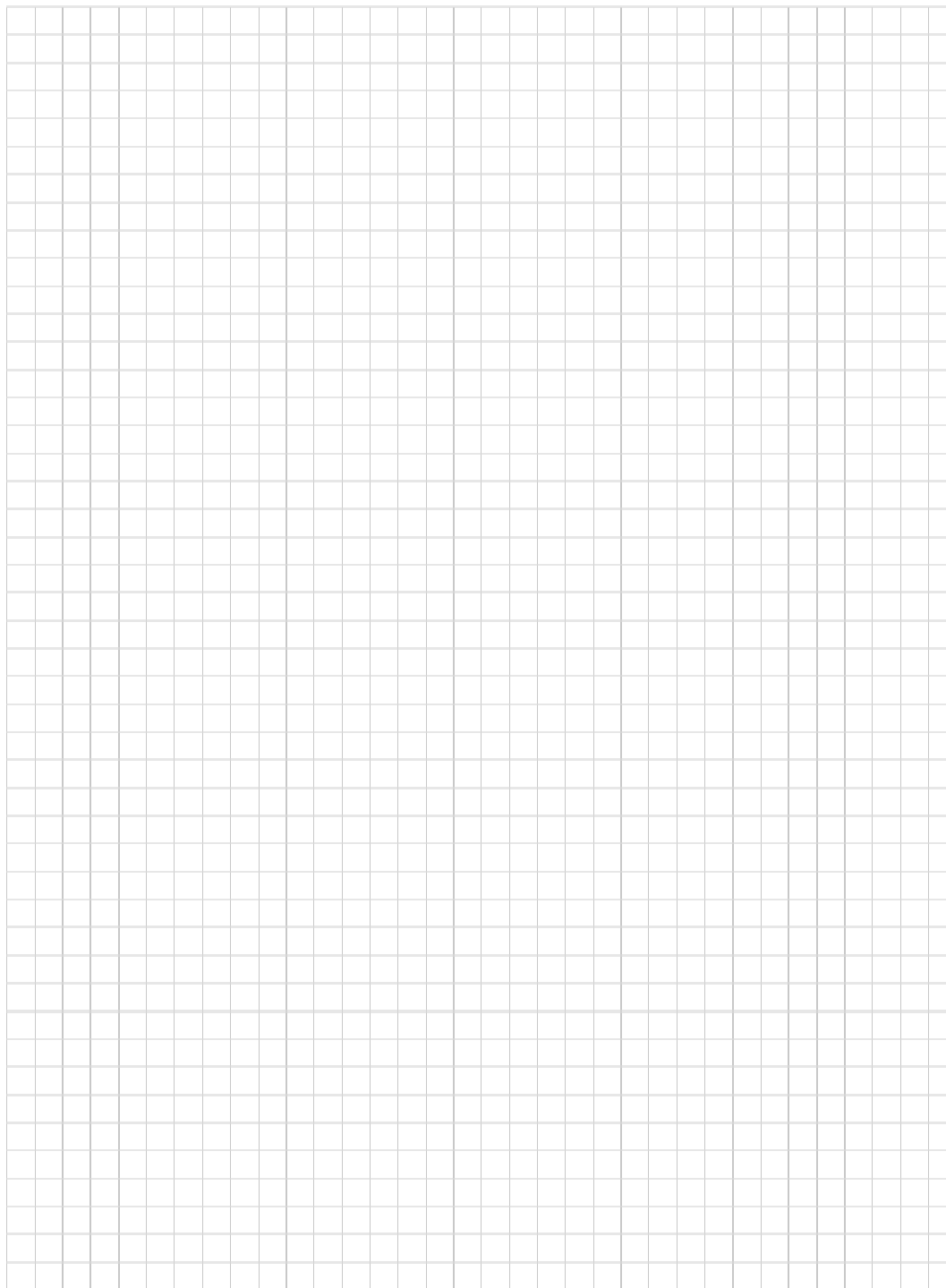


C2) Solve the equation $10x^2 + x = 2$.

C3) Compare the properties of the three quadratic relations given below.

Model 1	Model 2	Model 3																
<table border="1" style="margin: auto;"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr><td>-2</td><td>0</td></tr> <tr><td>-1</td><td>5</td></tr> <tr><td>0</td><td>8</td></tr> <tr><td>1</td><td>9</td></tr> <tr><td>2</td><td>8</td></tr> <tr><td>3</td><td>5</td></tr> <tr><td>4</td><td>0</td></tr> </tbody> </table>	x	y	-2	0	-1	5	0	8	1	9	2	8	3	5	4	0		$y = (x + 2)(x - 4)$
x	y																	
-2	0																	
-1	5																	
0	8																	
1	9																	
2	8																	
3	5																	
4	0																	





C4) Select values of a and h so that the quadratic relation with equation $y = a(x - h)^2 + 60$ models a real life scenario.

Explain the connection between the features of the parabola and the scenario you have modeled.

