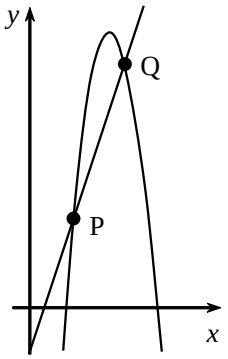
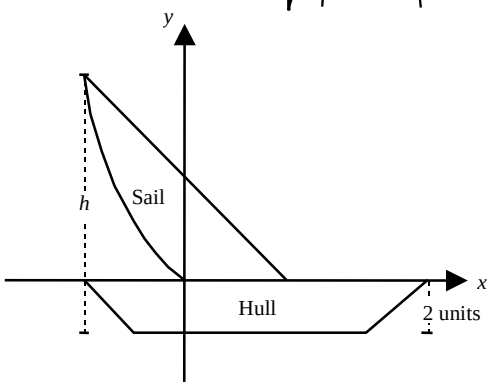


1 In the Cartesian plane on the right, a parabola and a straight line intersect at points P and Q.

The equation of the parabola is $y = -x^2 + 24x - 95$.

The equation of the line is $4x - y - 4 = 0$.

What are the coordinates of points P and Q?



2 The logo of a sailing school is represented in the Cartesian plane to the right. The sail is outlined by part of a curve and a segment for which the equations are :

$$y = x^2$$

and $y = -x + 2$

The depth of the hull measures 2 units.

What is the total height of the sailboat, including the hull?

3 For each week that he works, Fred is paid a fixed hourly wage plus a bonus based on the amount of profit the company makes.
Last week, Fred worked 14 hours and received a bonus of $15.00.

This week, he worked 15 hours but his bonus was only $7.50.

Fred said that he earned the same amount of income for each of the two weeks.

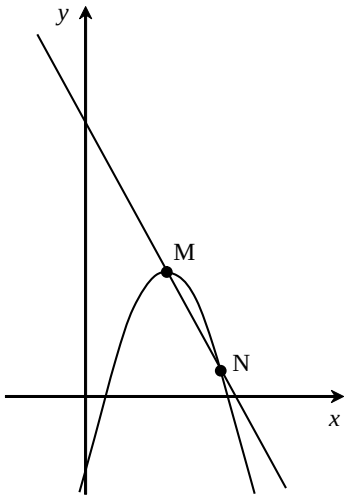
Next week, **how much will Fred earn if his boss guarantees him a bonus of $30.00 and 20 hours of work**?

4 Fran orders chicken wings and pizzas for herself and some friends at a restaurant. The cost of a pizza is 17 times the cost of a chicken wing.

Fran estimates that each person can eat 5 chicken wings and half a pizza. She places an order for 12 people. The total cost of this order is $64.80.

To ensure that they have enough food, Fran decides to order one more pizza.

If Fran adds one more pizza to her original order, what is the new total cost of the order?



5 In the Cartesian plane on the right, a straight line and a parabola intersect at points M and N.

The equation of the parabola is $y = -2x^2 + 12x - 8$.

Point M is the vertex of the parabola.

The *y*-intercept of the line is 22.

What are the coordinates of point N?

6 A line and a parabola intersect at points A and C. The equation of the line and the equation of the parabola are as follows: $5x - 4y + 48 = 0$

$$y = 0.25x^2 - 7x + 41$$

What are the coordinates of points A and C?

7 **Graph each of the following inequalities**.

a) $y > \frac{7}{2}x - 3$ b) $5x - 2y + 1 < 0$ c) $y \leq -2x^2 - 3$

d) $y > \frac{1}{2}x(4x + 2)$

8 **Graph the systems of inequalities**.

a) $2x + y \geq -2$
$3x - 4y - 12 \leq 0$

b) $y \leq \frac{1}{2}x + 2$
$y \geq \frac{1}{2}x^2 + 1$

c) $y < -2x^2$ and $y > -5$

9 A company logo consists of 2 overlapping circles. The equation of the first circle is $x^2 + y^2 = 9$ and that of the second circle is $(x-4)^2 + y^2 = 9$. **Determine the coordinates of the intersection points of the two circles**.