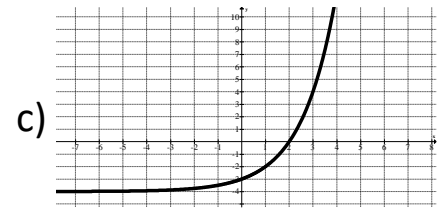


# STATION F

1. State whether or not each of the following is a function.

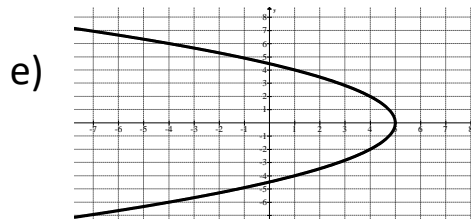
a)  $y = 3x - 2$

b)  $H = \{(-1,4), (-1,5), (2,3), (5,1)\}$



d)

x	y
-2	9
-1	7
0	-2
1	-1
2	-2

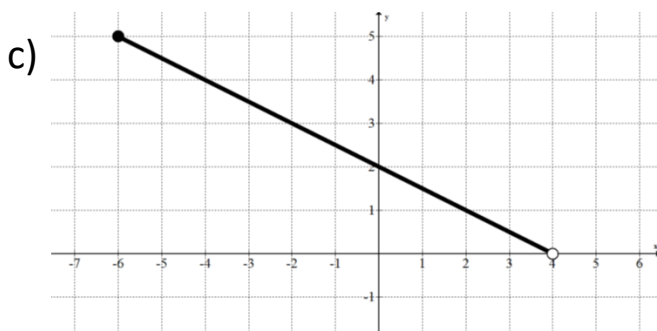


f)  $f(x) = 5x^2 - 7x + 3$

2. State the domain and range of each of the following:

a)  $\{(2,3), (-1,4), (0,3), (3,4)\}$

b)  $f(x) = 2(x - 5)^2 + 7$



d)  $f(x) = 5$

e)  $x^2 + y^2 = 144$

# STATION U

If  $f(x) = 2x^2 - 5x + 4$ , determine each of the following:

a)  $f(-2)$

b)  $f(x + 1)$

c)  $x$  when  $f(x) = 7$

d)  $f(f(-1))$

# STATION N<sub>1</sub>

Simplify.

a)  $\sqrt{32}$

b)  $(4\sqrt{6})^2$

c)  $(2\sqrt{15})(5\sqrt{3})$

d)  $\frac{\sqrt{54}}{\sqrt{3}}$

e)  $3\sqrt{8} - 2\sqrt{18} + 5\sqrt{72}$

f)  $\sqrt[4]{32} - 3\sqrt[5]{96} + 2\sqrt[4]{162} - \sqrt[5]{729}$

# STATION C

Simplify. Rationalize the denominator if necessary.

a)  $\frac{2\sqrt{12}}{-\sqrt{72}}$

b)  $\frac{\sqrt{75} - 15\sqrt{6}}{5\sqrt{3}}$

c)  $\frac{4\sqrt{2}}{5\sqrt{2} + 6}$

# STATION T

1. Determine the equation of a parabola, in standard form, that passes through the point  $(7, -2)$  and has x-intercepts of  $\sqrt{2}$  and  $-\sqrt{2}$ .

2. For what value(s) of  $k$  will the function  $f(x) = 2x^2 + 4kx + k$  have two equal real roots?

# STATION I

State the maximum or minimum value for each:

a)  $f(x) = -5(x - 12)^2 - 15$

b)  $f(x) = (x - 6)(x + 10)$

c)  $f(x) = -\frac{1}{3}x^2 + 6x + 5$  (complete the square)

d)  $f(x) = 2x^2 + 4x - 6$  (partial factor)

# STATION 0

Solve. Exact answers only.

a)  $x^2 + 2x - 2 = 0$

b)  $3x^2 - 11x - 4 = 0$

c)  $16x^2 + 1 = 0$

d)  $-2(x - 8)^2 + 72$

# STATION N<sub>2</sub>

**(Round all answers to two decimals)**

1. A small rocket is shot into the air. Its height  $h$ , in metres, after  $t$  seconds is  $h(t) = -4.9t^2 + 39.2t + 1.75$ .

- a) What is the initial height of the rocket?
- b) What is the maximum height of the rocket and when does it occur?
- c) How long is the rocket at or above 5 metres?

2. Julia is building a rectangular wading pool.

She wants the area of the bottom to be  $54 \text{ ft}^2$  and the length of the pool to be 3 ft longer than twice its width.

What are the dimensions of the pool?



# STATION S

While training for his jump from space, Austrian daredevil Felix Baumgartner jumped from the CN tower, free falling for several seconds before opening his parachute.

His height ,  $h$ , in metres, and time,  $t$ , in seconds, after jumping, can be modelled by

$$h(t) = -4.9t^2 + t + 344$$

before the release of the parachute and

$$h(t) = -3t + 122$$

after the release of the parachute.

How long after jumping did Felix release his parachute? Round to two decimal places.