Q1

Complete the table of values.

$y = \dfrac{2}{x}$

x	-2	-1	$-\dfrac{1}{2}$	0	$\dfrac{1}{2}$	1	2
y				✖			

Q2

Complete the table of values.

$y = -x^3 + 2$

x	-3	-2	-1	0	1	2	3
y							

Q3

Mila is paid $12 per hour for her part time job. What is this in cents/min?

[   ] cents/min

Q4

A spaceship flies at a speed of 1.5 km/sec. What is this speed in km/h?

[   ] km/h

Q5

D is directly proportional to the square of t. $D = 100$, when $t = 5$.

Find the formula for D in terms of t.

○ $D = 4t^2$ ○ $D = 4\sqrt{(t)}$

○ $D = \dfrac{4}{t^2}$ ○ $D = \dfrac{t^2}{4}$
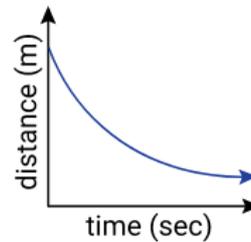
Find the value of D when $t = 8$.

$D = $ [   ]

Q6

Describe the distance shown in the graph.

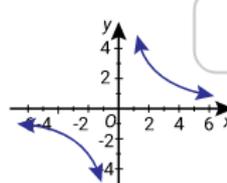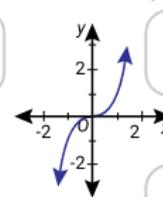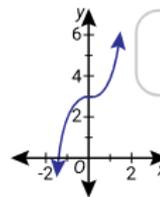The distance is [   ]

at a [   ] rate.
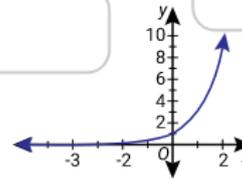

increasing

decreasing

constant

Q7

Match the graphs with their equations.
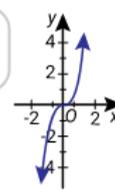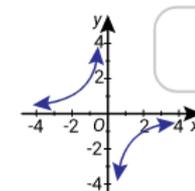

$y = x^3$

$y = 3^x$

$y = \dfrac{6}{x}$
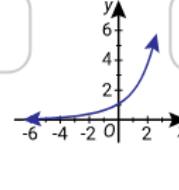
$y = x^3 + 3$

Q8

Match the graphs with their equations.
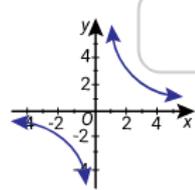
$y = 2x^3$

$y = 2^x$
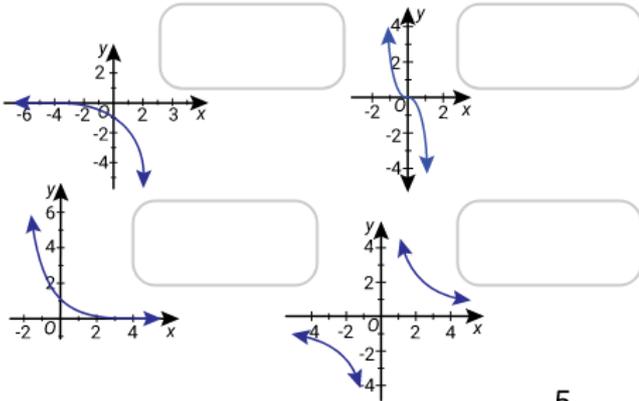
$y = \dfrac{3}{x}$

$y = -\dfrac{2}{x}$

Q9

Match the graphs with their equations.

$y = 3^{-x}$

$y = \dfrac{5}{x}$

$y = -2^x$

$y = -3x^3$

Q10

Complete the conversion.

6 cm/sec = [____] m/min

Q11

Complete the conversion.

6 cm/sec = [____] m/h

Q12

A snail is crawling at a speed of 4 mm/s. What is this speed in m/h?

[____] m/h

Q13

The mass of a substance is directly proportional to the volume. The mass of 2 cups of the substance is 250 grams. What is the mass of 5 cups?

[____] grams

Q14

The cost of frozen yoghurt is directly proportional to the volume. 120 mL of yogurt cost $6. How much would 100 mL cost?

$ [____]

Q15

At a library the cost of photocopying varies directly as the number of pages copied. Caleb is charged $3.40 to copy 850 pages. How much will Caleb be charged for 685 pages?

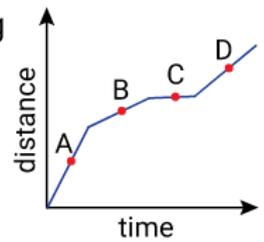$ [____]

Q16

Consider the distance-time graph of Mason's bushwalk.

When was Mason moving fastest?

○ A   ○ B

○ C   ○ D

When was Mason stationary?

○ A   ○ B

○ C   ○ D

Was Mason moving faster at A or D?

○ A   ○ D

Q17

Consider the distance-time graph of Isabella's walk to the shops.
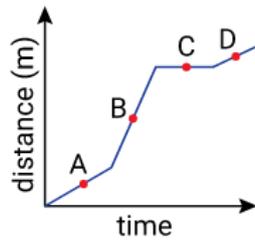
When was Isabella moving fastest?

○ A   ○ B

○ C   ○ D

When was Isabella stationary?

○ A   ○ B

○ C   ○ D

Was Isabella moving faster at B or D?

○ B   ○ D

Q18

Consider the distance-time graph of Zoe's bushwalk.

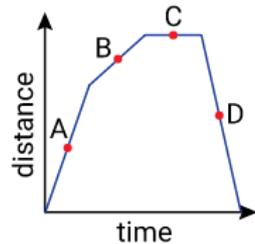When was Zoe walking back to her start point?

○ A   ○ B

○ C   ○ D

When was Zoe stationary?

○ A   ○ B

○ C   ○ D

Was Zoe moving faster at A or B?

○ A   ○ B

Q19

Match the graphs with their equations.

$y = -2x^3$

$y = x^3$

$y = \dfrac{5}{x}$

$y = -\dfrac{2}{x}$

Q20

Match the graphs with their equations.

$y = -\dfrac{1}{x}$

$y = 3^x$

$y = \dfrac{5}{x}$

$y = 2^{-x}$

Q21

Match the graphs with their equations.

$y = -\dfrac{2}{x}$

$y = 2x^3$

$y = \dfrac{3}{x}$

$y = x^3 + 1$

Q22

Complete the conversion.

$4\,mm/sec =$ [____] m/h

Q23

Complete the conversion.

$7\,m/sec =$ [____] km/year

Q24

Complete the conversion. (Ans. to 1 d.p.)

$24\,L/hour =$ [____] mL/s

Q25

The distance covered by a train travelling at a constant speed is directly proportional to the time spent travelling. If the train goes 30 km in 40 minutes how far will it go in 4 hours?

[____] km

Q26

The mass of a substance varies directly as its volume. 3 L of the substance has a mass of 4.5 kg. What is the mass of 250 mL of the substance?

[____] grams

Q27

The force (F) of a mass is directly proportional to the acceleration (a) of the mass. When $A = 25$, $F = 1500$.

Write a formula for F in terms of a.
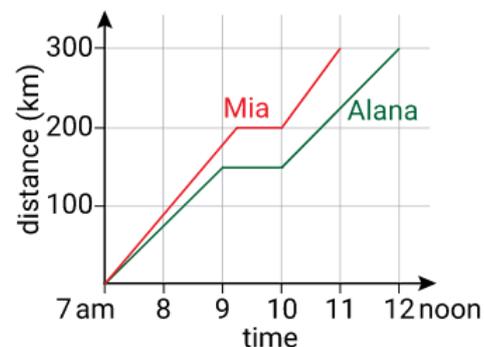
$F =$ [____]

Find F when $a = 130$.

[____]

Find a when $F = 1200$.

[____]

Q28

The graph shows the journeys of Mia and Alana from Town A to Town B.

Who completes the trip in the shortest time?

Alana   Mia

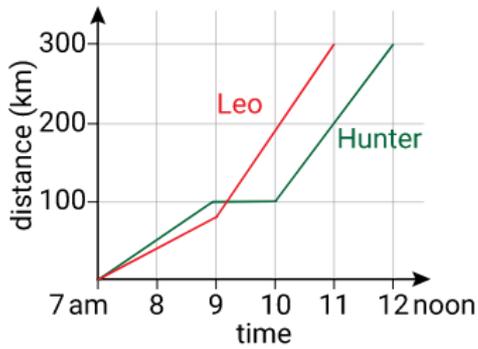At 10 am does Mia increase or decrease her speed?

increase   decrease

How far from Town A is Mia when she stops to rest?

[____] km

Q29

The graph shows the journeys of Leo and Hunter from Town A to Town B.

Who takes the longest time to complete the trip?

Hunter   Leo
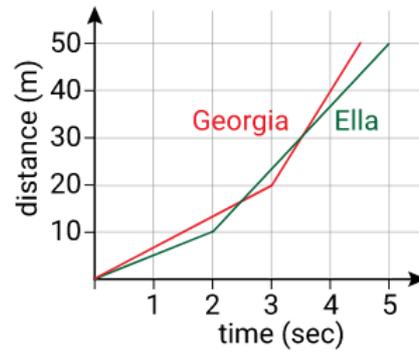
At 9 am does Leo increase or decrease her speed?

decrease   increase

How far from Town A is Hunter when he stops to rest?

[   ] km

Q30

The graph shows a race between Georgia and Ella.

Who takes the longest time to complete the race?

Georgia   Ella

After 3 seconds does Georgia increase or decrease her speed?

increase   decrease

How far from the start is Ella after 2 seconds?

[   ] metres