

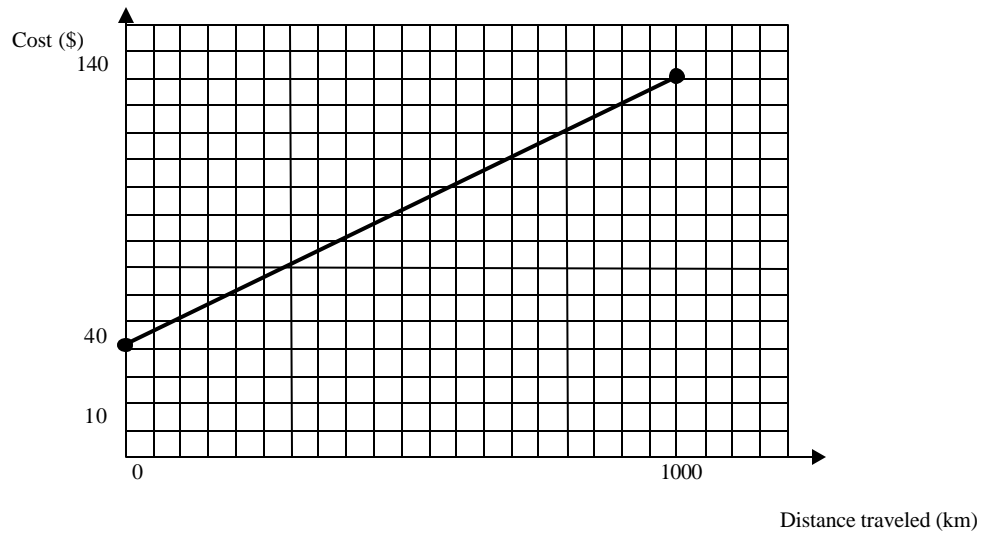
PART A

- | | | | | | | | | | | |
|----|-----------------------|-----------------------|---|-----------------------|--|-----|-----------------------|---|-----------------------|-----------------------|
| 1. | <input type="radio"/> | B | C | D | | 7. | A | B | <input type="radio"/> | D |
| 2. | <input type="radio"/> | B | C | D | | 8. | A | B | <input type="radio"/> | C |
| 3. | A | <input type="radio"/> | C | D | | 9. | A | B | <input type="radio"/> | <input type="radio"/> |
| 4. | A | B | C | <input type="radio"/> | | 10. | A | B | <input type="radio"/> | D |
| 5. | A | B | C | <input type="radio"/> | | 11. | <input type="radio"/> | B | C | D |
| 6. | A | <input type="radio"/> | C | D | | | | | | |

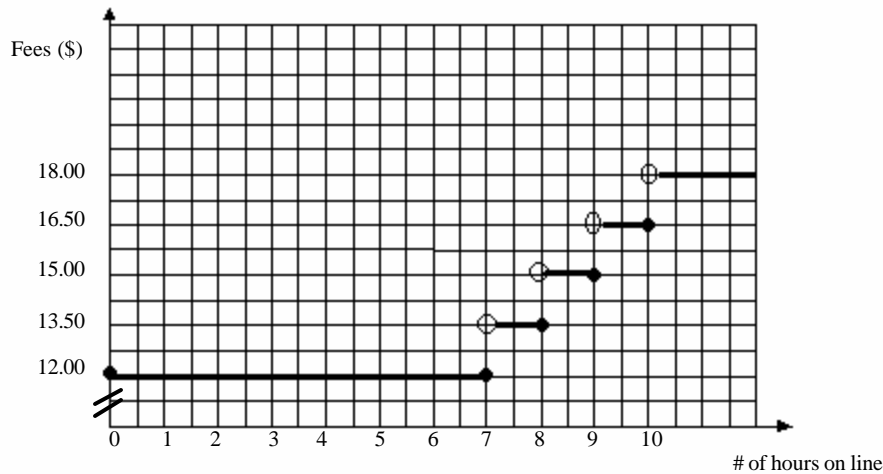
PART B

12.

Car Rental



13.



14. The cost is the same for both locations after 5 hours.

15.

Statement	Reason
1. $m(\angle ACB) = m(\angle 2) = 42^\circ$	Vertically opposite angles must be equal
2. $m(\angle BAC) = m(\angle 1) = 51^\circ$	Alternate (interior) angles formed by // lines and a transversal must be equal.
3. $m(\angle ABC) = 180^\circ - (42 + 51)^\circ$ $= 180^\circ - 93^\circ$ $= 87^\circ$	Sum of the (interior) angles of a triangle must equal 180° (Triangle Sum Theorem)
4. $m(\angle 3) = m(\angle ABC) = 87^\circ$	Vertically opposite angles must be equal

16. Complete table:

# of people at chalet	1	2	3	4	5
Cost (\$)	300	150	100	75	60

17. The rule is $y = 10x + 150$.

PART C

18.

SHOW ALL YOUR WORK

From Table:
Rate of Change:

$$\begin{aligned} a &= \frac{y_2 - y_1}{x_2 - x_1} \\ &= \frac{265 - 255}{1 - 0} \\ &= \frac{10}{1} = 10 \end{aligned}$$

Initial Value = 255

Therefore using $y = ax + b$, with $a = 10$ and $b = 255$

$$y = 10x + 255$$

If $y = 1025$, solve for x

$$y = 10x + 255$$

$$1025 = 10x + 255$$

$$1025 - 255 = 10x$$

$$770 = 10x$$

$$x = 77$$

FINAL ANSWER

The number of hours that John played was **77**.

19.

SHOW ALL YOUR WORK

Virus A

Rule: $y = 500(2)^x$

After 5 hours:

$$y_A = 500(2)^5$$

$$y_A = 500(32)$$

$$y_A = 16000$$

Virus B

Rule: $y = 80(3)^x$

After 5 hours:

$$y = 80(3)^x$$

$$y_B = 80(3)^5$$

$$y_B = 80(243)$$

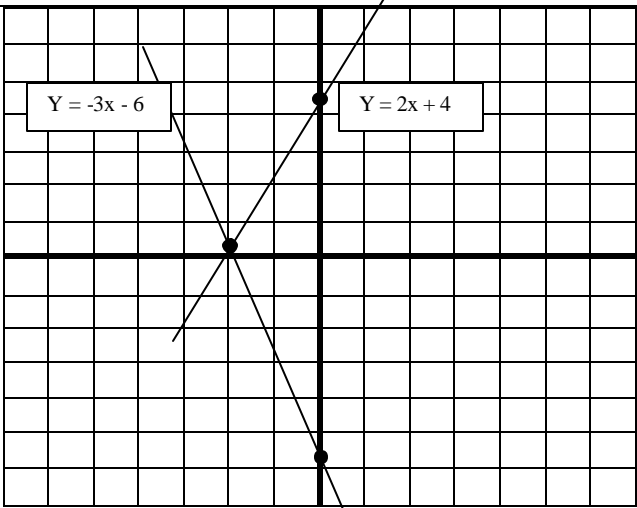
$$y_B = 19440$$

Difference:
$$\begin{aligned} y_B - y_A &= 19440 - 16000 \\ &= 3440 \end{aligned}$$

FINAL ANSWERThe difference in strands between the two Viruses after 5 hours is **3440** .**20.****SHOW ALL YOUR WORK**

$$y + 3x = -6$$

$-4y + 8x = -16$



1. $y + 3x = -6$

Therefore: $y = -3x - 6$

x-int: $y = 0$ y-int: $x = 0$
 $0 = -3x - 6$ $y = 0 - 6$
 $3x = -6$ $y = -6$
 $x = -2$ $(0, -6)$
 $(-2, 0)$

2. $y = 2x + 4$

Therefore: $-4y = -8x - 16$ and $y = 2x + 4$

x-int: $y = 0$ y-int: $x = 0$
 $0 = 2x + 4$ $y = 0 + 4$
 $-2x = 4$ $y = 4$
 $x = -2$ $(0, 4)$
 $(-2, 0)$

FINAL ANSWER

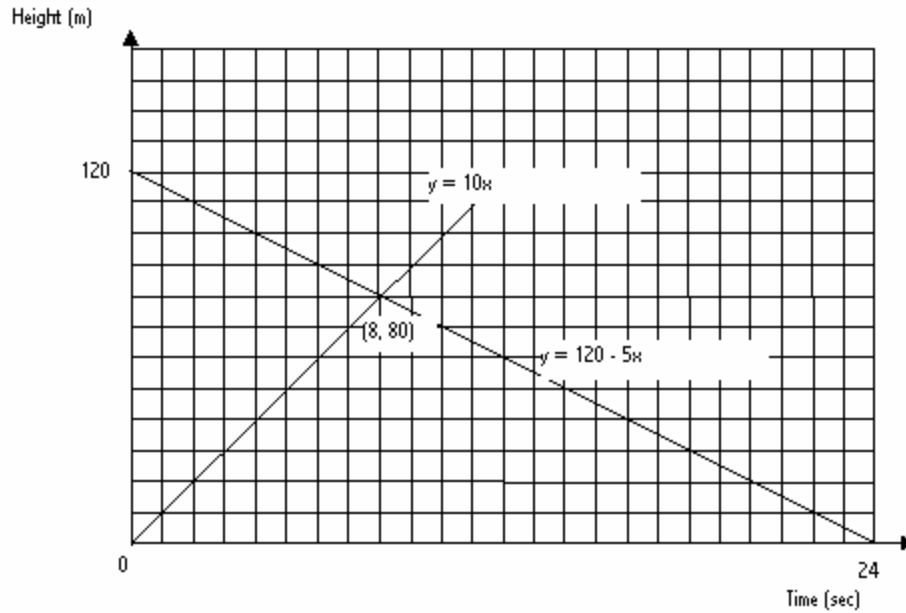
The point of intersection is $(-2, 0)$.

21.

SHOW ALL YOUR WORK

Statement	Reason
1. $\overline{AB} \parallel \overline{DE}$	Given
2. $\sphericalangle DACB \cong \sphericalangle DCE$	Vertically opposite angles are congruent
3. $\overline{CD} \cong \overline{CB}$	Definition of a midpoint
4. $\sphericalangle DABC \cong \sphericalangle DCDE$	Alternate (interior) angles are congruent
5. $\triangle DABC \cong \triangle DEDC$	ASA congruency rule

SHOW ALL YOUR WORK



1. Mary:

Direct Variation: $\therefore y = 10x$

x	0	2	4	6	8	10
y	0	20	40	60	80	100

2. Amy

Partial Variation: $\therefore y = 120 - 5x$

Use Comparison Method:

$$10x = 120 - 5x$$

$$10(8) = 80$$

$$10x + 5x = 120$$

$$120 - 5(8) = 80$$

$$15x = 120$$

$$\therefore (8,80)$$

$$x = 8$$

FINAL ANSWER

After **8** seconds the two balloons will be at the same height.

23.

SHOW ALL YOUR WORK

1. Peter:

Flat rate of \$5, Therefore, $y = 5x$

After 3 hours, $y = 5(3)$

= \$15

2. Tara:

$y = 3x + 5$

$y = 3(3) + 5 = 9 + 5$

= \$14

3. Olivia: $y = 15$

After 3 hours

Cost is \$15

Tara's bowling alley offers the best deal

FINAL ANSWER

The best deal is offered by **Tara's** favourite bowling alley.

SHOW ALL YOUR WORK

# of boxes of tiles	Floor Area (cm ²)
0	0
1	32 000
2	64 000
3	96 000
4	128 000
5	160 000

Floor area for one box of floor tiles:

Area for 1 tile = $40 \times 40 = 1600 \text{ cm}^2$

Area covered by 1 box of tiles: $20 \times 1600 = 32\,000 \text{ cm}^2$

Rate of change = 32 000

Therefore,

$y = 32\,000x$, where $x = \#$ of boxes of tiles

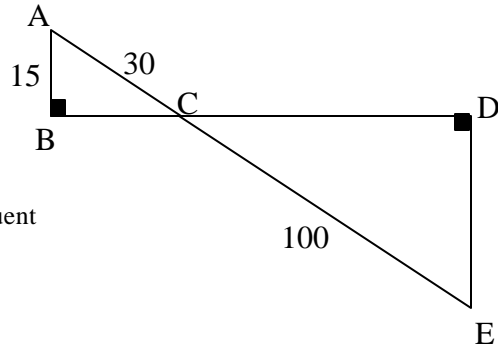
$y = \text{floor area (cm}^2\text{)}$

FINAL ANSWER

The rule for this relation is **$y = 32000x$** .

25.

SHOW ALL YOUR WORK



$m(\angle ACB) = 30^\circ \leftarrow 30, 60, 90 \text{ rule applied to } \triangle ABC$

$m(\angle DCE) = 30^\circ \leftarrow \text{vertically opposite angles are congruent}$

$m(\overline{DE}) = 50 \text{ cm} \leftarrow 30, 60, 90 \text{ rule applied to } \triangle CDE$

To find $m(\overline{CD})$

$$\begin{aligned} c^2 &= a^2 + b^2 \\ 100^2 &= 50^2 + b^2 \\ b &\approx 86.6 \end{aligned}$$

To find $m(\overline{CB})$

$$\begin{aligned} c^2 &= a^2 + b^2 \\ 30^2 &= 15^2 + b^2 \\ b &\approx 25.9 \end{aligned}$$

$$\begin{aligned} m(\overline{BD}) &= m(\overline{CD}) + m(\overline{CB}) \\ &= 86.6 + 25.9 \\ &= 112.5 \end{aligned}$$

FINAL ANSWER

The measure of \overline{BD} is **112.5** units.