Grade 11

School-without-Walls Package 7 (3 May to 7 May 2021)

Homework_Day 1 (3 May 2021)

Subject	Click on the Youtube Links	Things to Note
English	https://youtu.be/7dOBMUESkqk	a) Watch the video on prepositional phrases b) Complete activity 4-1 and 4-2 in your Writing and Grammar book.
Mathematics	**Exercise 3C** **1.** **(a)** $85\,300 = 8.53 \times 10^4$ **(b)** $52\,700\,000 = 5.27 \times 10^7$ **(c)** $0.000\,23 = 2.3 \times 10^{-4}$ **(d)** $0.000\,000\,094 = 9.4 \times 10^{-8}$ **2.** **(a)** $9.6 \times 10^3 = 9600$ **(b)** $4 \times 10^5 = 400\,000$ **(c)** $2.8 \times 10^{-4} = 0.000\,28$ **(d)** $1 \times 10^{-6} = 0.000\,001$ **3.** **(a)** 25.4 micrometres $= 25.4 \times 10^{-6}$ metres $= 2.54 \times 10^{-5}$ metres **(b)** 2340 mm $= 2340 \times 10^{-3}$ metres $= 2.34$ metres	**4.** **(a)** $(2.34 \times 10^5) \times (7.12 \times 10^{-4})$ $=$ (2 . 3 4 × 10^ 5) × (7 . 1 2 × 10^ − 4) = $= 166.608$ $= 1.67 \times 10^2$ (to 3 s.f.) **(b)** $(5.1 \times 10^{-7}) \times (2.76 \times 10^{-3})$ $=$ (5 . 1 × 10^ − 7) × (2 . 7 6 × 10^ − 3) = $= 1.4076 \times 10^{-9}$ $= 1.41 \times 10^{-9}$ (to 3 s.f.) **(c)** $\frac{1.34 \times 10^4}{4 \times 10^5}$ $=$ (1 . 3 4 × 10^ 4) ÷ (4 × 10^ 5) = $= 0.0335$ $= 3.35 \times 10^{-2}$ **(d)** $\frac{3 \times 10^{-4}}{9 \times 10^{-8}}$ $=$ (3 × 10^ − 4) ÷ (9 × 10^ − 8) = $= 3330$ (to 3 s.f.) $= 3.33 \times 10^3$ **(e)** $2.54 \times 10^3 + 3.11 \times 10^4$ $=$ 2 . 5 4 × 10^ 3 + 3 . 1 1 × 10^ 4 = $= 33\,640$ $= 3.36 \times 10^4$ (to 3 s.f.)

(f) $2.37 \times 10^{-4} + 3.25 \times 10^{-5}$

= [2] [.] [3] [7] [×10^x] [−] [4]

[+] [3] [.] [2] [5] [×10^x] [−] [5] [=]

$= 2.695 \times 10^{-4}$

$= 2.70 \times 10^{-4}$ (to 3 s.f.)

(g) $6 \times 10^5 - 3.1 \times 10^7$

= [6] [×10^x] [5] [−] [3] [.] [1] [×10^x] [7] [=]

$= -30\,400\,000$

$= -3.04 \times 10^7$

(h) $1.2 \times 10^{-6} - 2.5 \times 10^{-8}$

= [1] [.] [2] [×10^x] [−] [6] [−] [2] [.] [5]

[×10^x] [−] [8] [=]

$= 1.175 \times 10^{-6}$

$= 1.18 \times 10^{-6}$ (to 3 s.f)

(i) $\dfrac{1.45 \times 10^{-4} + 3.6 + 10^2}{7.8 \times 10^3}$

= [(] [1] [.] [4] [5] [×10^x] [−] [4] [+] [3] [.] [6]

[×10^x] [2] [)] [÷] [7] [.] [8] [×10^x] [3] [=]

$= 0.0462$ (to 3 s.f.)

$= 4.62 \times 10^{-2}$

(j) $\dfrac{8.5 \times 10^3 - 2.17 \times 10^{-1}}{6 \times 10^{-2}}$

= [(] [8] [.] [5] [×10^x] [3] [−] [2] [.] [1] [7]

[×10^x] [−] [1] [)] [÷] [6] [×10^x] [−] [2] [=]

$= 141\,663.05$

$= 1.42 \times 10^5$ (to 3 s.f.)

Physics	Check your answers to the previous week assignment and do the corrections.

5A Section Review

1. In physics, two-dimensional kinematic position is most efficiently represented by what quantity?

   Two-dimensional position is best represented by the position vector. (§5.1)

2. Describe how displacement is calculated in two-dimensional motion. Include the formula you would use in your answer.

   Displacement is calculated by finding the vector difference of two position vectors: $d = r_2 - r_1$. (§5.2)

3. Discuss the difference between the quantities represented by the symbols v, $\bar{v}$, $|\bar{v}|$, and $\bar{v}$.

   The symbol v represents instantaneous velocity; $\bar{v}$ is the average velocity during an interval; $|\bar{v}|$ is the magnitude of average velocity; $\bar{v}$ is the average speed during an interval. (§5.3)

4. How is the *direction* of the average acceleration vector, $\bar{a}$, determined if you are given the initial and final velocities?

   The direction of $\bar{a}$ is the same as the direction of the velocity difference vector, $\Delta v = v_2 - v_1$. (§5.4)

✪5. A visitor to Washington, D.C. walks directly from the White House along Pennsylvania Avenue to Constitution Avenue. The distance is 2.00 km in the direction 110.T. He turns left on Constitution Avenue and walks due east for an additional 0.87 km. When he stops, the dome of the US Capitol Building is 0.32 km due south of his position. He walks to the Capitol Building and enters the Rotunda under the dome. What is his displacement from the White House?

In the SE quadrant, $\alpha = \theta - 90°$.

$\alpha = 110° - 90° = 20°$

Data:

$d_1 = 2.00$ km at $20°$

$d_2 = 0.87$ km at $0°$

$d_3 = 0.32$ km at $270°$

$$d_x \cong d_{1x} + d_{2x} + d_{3x}$$

$$d_x = (2.00 \text{ km})\cos 20.° + 0.87 \text{ km} + 0 \text{ km} \cong 2.749 \text{ km}$$

$$d_y = d_{1y} + d_{2y} + d_{3y}$$

$$d_y = (2.00 \text{ km})\sin 20.° + 0 \text{ km} + 0.32 \text{ km} \cong -1.004 \text{ km}$$

$$d = \sqrt{d_x^2 + d_y^2} = \sqrt{(2.749 \text{ km})^2 + (1.004 \text{ km})^2}$$

$$d \cong 2.926 \text{ km} \ (\cong 2.93 \text{ km})$$

6. Famous quarterback Fleet O. Foote is attempting a quarterback draw by running up the middle toward his goal line at 15 ft/s (4.6 m/s). A linebacker hits him squarely, and their combined final velocity is 12 ft/s (3.7 m/s) at an angle of +120.° from the quarterback's original direction. The time it took to change direction at impact was 0.20 s. Choose an appropriate horizontal coordinate system and calculate the average acceleration vector of the quarterback during the tackle.

Assume that the quarterback's motion was in the positive x-direction.

Data:

$v_1 = 4.6$ m/s at 0°

$v_2 = 3.7$ m/s at 120.°

$\Delta t = 0.20$ s

Find α_2:

$$\alpha_2 = 180° - 120.° = 60.°$$

Find the components of the velocity difference vector.

$$\Delta \mathbf{v} = \mathbf{v}_2 - \mathbf{v}_1$$

$$v_{1x} = (4.6 \text{ m/s}) \cos 0° = +4.\underline{6} \text{ m/s}$$

$$v_{1y} = (4.6 \text{ m/s}) \sin 0° = 0.0 \text{ m/s}$$

$$|v_{2x}| = (3.7 \text{ m/s}) \cos 60.° = 1.\underline{8}5 \text{ m/s}$$

$$v_{2x} = -1.\underline{8}5 \text{ m/s}$$

$$v_{2y} = (3.7 \text{ m/s}) \sin 60.° = +3.\underline{2}0 \text{ m/s}$$

$$\Delta v_x = v_{2x} - v_{1x} = (1.\underline{8}5 \text{ m/s}) - (+4.\underline{6} \text{ m/s})$$
$$\cong -6.\underline{4}5 \text{ m/s}$$

$$\Delta v_y = v_{2y} - v_{1y} = (+3.\underline{2}0 \text{ m/s}) - 0.0 \text{ m/s}$$
$$\cong +3.\underline{2}0 \text{ m/s}$$

$$\Delta v = \sqrt{\Delta v_x^2 + \Delta v_y^2}$$

$$\Delta v = \sqrt{(-6.\underline{4}5 \text{ m/s})^2 + (3.\underline{2}0 \text{ m/s})^2}$$
$$\cong 7.\underline{2}0 \text{ m/s}$$

$$\alpha_{\Delta v} = \tan^{-1}\left(\frac{|+3.\underline{2}0 \text{ m/s}|}{|-6.\underline{4}5 \text{ m/s}|}\right) \cong 26.\underline{3}8°$$

Determine the vector angle. The difference vector $\Delta \mathbf{v}$ is in the second quadrant, so

$$\theta_{\Delta v} = 180° - \alpha_{\Delta v} = 180 - 26.\underline{3}8°$$

$$\theta_{\Delta v} \cong 153.\underline{6}1° \ (\cong 153.6°)$$

Compute acceleration from the velocity difference.

$$|\overline{\mathbf{a}}| \cong \frac{|\Delta \mathbf{v}|}{\Delta t} \cong \frac{7.\underline{2}0 \text{ m/s}}{0.20 \text{ s}}$$

$$|\overline{\mathbf{a}}| \cong 3\underline{6}.0 \text{ m/s}^2 \ (\cong 36 \text{ m/s}^2)$$

$\overline{\mathbf{a}} \cong 36$ m/s^2 at $+153.6°$ from the quarterback's original direction

✪7. An athlete sprints a circular 400.0 m track in 50.0 s. Assume he runs at a constant speed.

a. What is his speed over the entire course?

$v = s/\Delta t = 400.0\ m/50.0\ s$

$v = 8.00\ m/s$

Data:

$s = 400.0\ m$

$\Delta t = 50.0s$

b. What is the magnitude of his instantaneous velocity at any point along the circuit?

Since the athlete runs at a constant speed, $|v| = 8.00\ m/s$.

c. If he starts facing west and runs counterclockwise, what is his velocity halfway around the circle?

$v_{halfway} = 8.00\ m/s$ east

d. What is the average acceleration for one lap of the track?

$\Delta v = v_2 - v_1$ However, $v_2 = v_1$, therefore

$$\bar{a} = \frac{v_2 - v_1}{\Delta t} = \frac{0\ m/s}{\Delta t}$$

$\bar{a} = 0\ m/s^2$

Portuguese

Conteúdo: COMPARATIVO.
Objetivo: Estudantes pode ser:

- Comparar pessoas, objectos, etc.

- Comparativo | Português On-line

https://www.youtube.com/watch?v=lpSvFSalOzA

- Click the PDF Worksheet to read

(PDF) Aula online 7 - Comparações.pdf

- Click the Link to answer the questions of comparativo.

https://forms.gle/jQk9VUzKieoinmik8

1) Complete as frases de acordo com o grau comparativo pedido:

- **Superioridade**
  a) O Pedro acorda _____ cedo _____ o Jaime.
  b) Este professor é ____ calmo _____ o outro.

- **Igualdade**
  a) João _____ inteligente ___ David.
  b) O Paulo é _____ alto ____ o João.

- **Inferioridade**
  a) Juliana é _____ estudioso _____ a Maria.
  b) O gato é _____ ferroz _____ o cão.

2) Resolve as questões do exercício de Aula online n^0 7 – Adjectivos e Advérbios – Grau Comparativo (pdf).

Homework_Day 2 (4 May 2021)

Subject	Click on the Youtube Links	Things to Note
English	https://youtu.be/QFcaUTd8DgY	a) Watch the video on appositives b) Complete activity 4-3 and 4-4 in your Writing and Grammar book.
Mathematics	**5. (a)** $(1.35 \times 10^{-4})^3$ = (1 . 3 5 × 10^x − 4) x^y 3 = $= 2.46 \times 10^{-12}$ (to 3 s.f.) **(b)** $6(3.4 \times 10^3)^2$ = 6 × (3 . 4 × 10^x 3) x^y 2 = = 69 360 000 $= 6.94 \times 10^7$ (to 3 s.f.) **(c)** $\sqrt{1.21 \times 10^8}$ = √ (1 . 2 1 × 10^x 8) = $= 1.1 \times 10^4$ **(d)** $\sqrt[3]{9.261 \times 10^6}$ = shift ∛ (9 . 2 6 1 × 10^x 6) = = 210 $= 2.1 \times 10^2$ **(e)** $\frac{2.3 \times 10^{-2} \times 4.7 \times 10^3}{2 \times 10^3}$ = (2 . 3 × 10^x − 2 × 4 . 7 × 10^x 3) ÷ 2 × 10^x 3 = = 0.05405 $= 5.41 \times 10^{-2}$ (to 3 s.f.) **(f)** $\frac{8 \times 10^2 + 2.5 \times 10^3}{2 \times 10^{-2} - 3.4 \times 10^{-3}}$ = (8 × 10^x 2 + 2 . 5 × 10^x 3) ÷ (2 × 10^x − 2 − 3 . 4 × 10^x − 3) = = 199 000 (to 3 s.f.) $= 1.99 \times 10^5$	Exercise 3C Do Questions 10 - 14

	6. **(a)** $2P \times Q = 2(7.5 \times 10^3) \times (5.25 \times 10^4)$ $= 7.875 \times 10^8$ $= 7.88 \times 10^8$ (to 3 s.f.) **(b)** $Q - P = (5.25 \times 10^4) - (7.5 \times 10^3)$ $= 4.5 \times 10^4$ **7.** $x + 8y = (2 \times 10^{-3}) + 8(7 \times 10^{-4})$ $= 7.6 \times 10^{-3}$ **8.** **(a)** $MN = (3.2 \times 10^6) \times (5.0 \times 10^7)$ $= 1.6 \times 10^{14}$ **(b)** $\frac{M}{N} = \frac{3.2 \times 10^6}{5.0 \times 10^7}$ $= 6.4 \times 10^{-2}$ **9.** $R = \frac{M}{EI}$ $= \frac{6 \times 10^4}{(4.5 \times 10^8) \times (4 \times 10^2)}$ $= 3.33 \times 10^{-7}$ (to 3 s.f.)	
Physics	Chapter 5 Motion in a Plane Recap : Horizontal Motion https://www.youtube.com/watch?v=hpWuZh6oTew Vertical Motion https://www.youtube.com/watch?v=K8iIu2OW7_E Read 5.5 Projectiles	Check your answers to the previous week assignment and do the corrections if you have done yesterday.
Portuguese	**Conteúdo:** ADJETIVO. **Objetivo:** Estudantes pode ser: • Definir o adjetivo. • Identificar a classificação e flexão dos adjetivos. ADJECTIVO - O que é, Tipo de flexão | Português https://www.youtube.com/watch?v=E4M1_CfC7Hw	1) O que é o adjetivo? 2) Complete o texto com as seguintes adjetivos: Feliz, calma, inteligente, jovem, confiante. Alice é uma menina muito **(1)**_____, sabe conversar sobre muitos assuntos diferentes. Por isso que ela se sente **(2)**_____ para falar tudo o que pensa. Ela é muito parecida com sua mãe, sempre **(3)**_____, tem paciência com todos ao seu redor, está todo o tempo **(4)**_____ e com um sorriso

		no rosto. O irmão **caçula** de Alice é quatro anos mais **(5)**_____ que ela e se chama Pedro.
Music	**Broken Vessels** https://www.youtube.com/watch?v=fiyYoe678yI	Write down the lyrics of the song in your English exercise book.

Homework_Day 3 (5 May 2021)

Subject	Click on the Youtube Links	Things to Note
English	https://youtu.be/wlQvrf3zvfU	a) Watch the video on verbal phrases b) Complete activity 4-5 and 4-6 in your Writing and Grammar book.
Mathematics	Chapter 4 Coordinate Geometry 4.1 Gradient of a straight line Read Pages 124 and 125. Study Worked Example 1 (Pages 125)	Exercise 4A Q1, Q2 and Q9
Physics	Chapter 5 Motion in a Plane Read 5.6 Horizontal Projections 5.7 Projectile Motion: Horizontal Component 5.8 Projectile Motion: Vertical Component https://www.youtube.com/watch?v=A1WnlgWvZaY Study Example 5-4 (page 100)	Do 5B Section Review Questions 1 and 2
Portuguese	**Conteúdo:** ADJETIVO. **Objetivo:** Estudantes pode ser: • Resolver os adjetivos. - Exercícios de adjetivos | Português https://www.youtube.com/watch?v=QSkKaRKWasM	Copia 5 frases e indica os adjetivos.

Homework_Day 4 (6 May 2021)

Subject	Click on the Youtube Links	Things to Note
English	Readworks Comprehension - Go to www.readworks.org - Click "Student Login" - Enter Class Code "FY3J5S" - **Click on your name** - Enter Password "1234" Complete comprehension assignment	
Mathematics	Study Worked Example 2 (Pages 126)	Exercise 4A Q3 to Q8
Physics	Chapter 5 Motion in a Plane Read 5.9 Frame of reference in Projections 5.10 Projection at an Angle 5.11 Graphing Projection Motion Study Example 5-5 (Page 101) Study Example 5-6 (Page 103) Projectile Motion https://www.youtube.com/watch?v=aY8z2qO44WA	Do 5B Section Review Questions 3 and 4
Portuguese	**Conteúdo:** ADVÉRBIO **Objetivo:** Estudantes pode ser: • Definir o advérbio. - O que é advérbio | Português On-line https://www.youtube.com/watch?v=uHpwrwg5nQM	1) O que é advérbio? 2) Quais são a classificação de advérbio? 3) Complete as frases com advérbio: a) Eu gosto de acordar _____. (Tempo) b) As crianças estavam _____ da porta. (Lugar) c) Neymar joga futebol muito _____. (Modo) d) Eles _____ foram ao Egito. (Negação) e) Maria _____ vai à feira. (Frequência)

		f) Hoje está quente _____. (Intensidade)
PE	**Stay Healthy** Watch the video done specially for SPMS on Staying Healthy at home in this time of pandemic https://www.youtube.com/watch?v=4w6oI9tIpVc	List down the 8 ways on how to stay healthy as shared Dr Linus in the video in your Science Exercise book. 1. Drink_____ 2. Wash _____ 3. Brush _____ 4. Eat _____ 5. Exercise _____ 6. Sleep _____ 7. Do not _____ 8. Do not _____

Homework_Day 5 (7 May 2021)

Subject	Click on the Youtube Links	Things to Note
English	Word Attack – Write a sentence using each of the following words. - Process - Project - Product - Programme - Purpose - Prevent - Produce - Private - Rather	
Mathematics	4.2 Length of a straight line Read pages 127 to 130 Study Worked Example 3 Watch Pythagoras Theorem https://www.youtube.com/watch?v=KsJa0aaANSk	Exercise 4B Q1
Physics	Chapter 5 Motion in a Plane 5.12 Range Determination Read Example 5-7 (Page 104 - 105) Read Example 5-3 (Page 97) Practice Problems and Strategy https://www.youtube.com/watch?v=lQbXXmyf2xc	Do 5B Section Review Questions 5 to 8
Portuguese	**Conteúdo:** VOCABULÁRIO CORONAVÍRUS **Objetivo:** Estudantes pode ser: • Saber o vocabulário relaciona com CoronaVírus. - Vocabulário do CoronaVírus tudo o quê você precisa saber. https://www.youtube.com/watch?v=vyoT7aN7e5I	1) O que é CoronaVírus? Responde com a tua opinião! 2) Copia e traduz as palavras de vocabulário para Inglês ou Tetum.