Grade 12

School-without-Walls Package 15 (5 July to 9 July 2021)

Homework_Day 1 (5 July 2021)

Subject	Click on the Youtube Links	Things to Note
English	Write an article on **My Dream Job** in your English exercise book. The write-up must have a minimum of 200 words.	
Mathematics	Quadratic inequalities https://youtu.be/1l2p-adhXy0	Copy worked Example 15 and do Practise Now 15 in Math 1
Chemistry	Download Chapter 14 Chemical Kinetics Notes Chapter 14 Chemistry Notes 14.1 Chemical Kinetic https://www.youtube.com/watch?v=uTFtaslJ0LM 14.2 Energy Diagrams	**Read page 362 to fill in the blanks in the notes (14.1 and 14.2)**
Physics	Answers to Section 12B Q2 – Q5 (Copy into your physics exercise book) 2. a. When a pendulum is pulled to the side and then released, what forces are acting on the pendulum mass at the instant of release? The only forces acting on the pendulum at the instant of release are the tension in the pendulum arm and the weight of the pendulum. (§12.7) b. What is the effect of the vector sum of these forces? The net force acting on the pendulum at the instant of release is the force that tangentially accelerates its mass along its circular path. (§12.7) 3. a. What additional force is acting on the pendulum at the bottom of its swing? Centripetal force is also acting on the pendulum mass at the bottom of its swing. (§12.7) b. Why does this force exist? The force is a third-law reaction to the force imposed by the mass because the string, through tension, prevents the mass from following a straight path (Chapters 7–8).	

	4. What limitation exists for considering pendulum motion as simple harmonic motion? Pendulum motion approximates SHM only if the initial displacement angle is small ($\theta < \pi/8$). (§12.8) 5. (True or False) The period of a pendulum is directly proportional to the length of the pendulum arm. False. (§12.8) The period is proportional to the square root of the pendulum arm length. 6. a. What forces must you consider when determining the "restoring force" that causes a pendulum to return to its equilibrium position? The pendulum "restoring force" is the sum of the pendulum's weight, the radial tension in the pendulum arm opposing the radial component of the pendulum's weight, and the centripetal force. (§12.7) b. For large amplitude swings, how does the "restoring force" vary with the position of the pendulum arm? Answers will vary. For large amplitude swings, the "restoring force" vector is smallest at the top of the swing, pointing toward the equilibrium position nearly tangent to the swing arc. The vector is largest at the bottom of the swing, pointing upward, since its components include both the centripetal force on the pendulum's mass and the reaction force to its full weight. For small amplitude swings, centripetal force is negligible, so tangential forces at the swing extremes are the only significant "restoring forces." (§12.7)	
Portuguese	Quiz – Língua Portuguesa | Coletivos https://www.youtube.com/watch?v=NKdxg5V2gV8	Quiz - Clique (click) no link abaixo e responda as perguntas. Não se esqueça de enviar! https://forms.gle/x6NhH5g5VZFQCrLg9

Homework_Day 2 (6 July 2021)

<table>
<tr><th>Subject</th><th>Click on the Youtube Links</th><th>Things to Note</th></tr>
<tr><td>English</td><td colspan="2">

Readworks Article

Click → www.readworks.org/student

1. Enter class code **55QG3L**
2. Click on YOUR NAME.
3. The default password is **1234.**
4. Look for **The Railway Train (Poem)**

In your English exercise book, write the meaning of the **words in blue** found in the article (If any)

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<tr><td>Mathematics</td><td>Quadratic inequalities</td><td>Copy worked Example 16 and do Practise Now 16 in Math 1</td></tr>
<tr><td>Physics</td><td colspan="2">

Answers to Section 12B Q7 – Q9 (Copy into your physics exercise book)

✪7. a. What is the period of an ideal pendulum that has a mass of 0.250 kg attached to the end of a pendulum arm that is 0.650 m long? Assume that it is swinging at the earth's surface.

$$T = 2\pi\sqrt{\frac{\ell}{|g|}}$$

$$T = 2\pi\sqrt{\frac{0.650\text{ m}}{|-9.81\text{ m/s}^2|}}$$

$T \cong 1.6\underline{1}7$ s ($\cong$ 1.62 s)

Data:
$m = 0.250$ kg
$\ell = 0.650$ m
$g = -9.81$ m/s^2

b. If the same pendulum were taken to the moon, what would its period be?

$$T = 2\pi\sqrt{\frac{\ell}{|g_{Moon}|}}$$

$$T = 2\pi\sqrt{\frac{0.650\text{ m}}{|-1.62\text{ m/s}^2|}}$$

$T \cong 3.9\underline{7}9$ s ($\cong$ 3.98 s)

✪8. What is the length of an ideal pendulum that swings with a period of 1.40 s near the earth's surface?

$$T = 2\pi\sqrt{\frac{\ell}{|g|}}$$

$$l = \frac{|g|T^2}{4\pi^2} = \frac{|-9.81\text{ m/s}^2|(1.40\text{ s})^2}{4\pi^2}$$

$l \cong 0.48\underline{7}0$ m ($\cong$ 0.487 m or 48.7 cm)

Data:
$T = 1.40$ s
$g = -9.81$ m/s^2

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	✪9. Find the period of a pendulum consisting of a thin, solid rod weighing 8.50 kg that is 3.50 m long. $T = 2\pi\sqrt{\frac{I}{m\lvert g\rvert l}}$ where $I = \frac{mL^2}{3}$ and $l = \frac{\ell}{2}$ $T = 2\pi\sqrt{\frac{2\ell}{3\lvert g\rvert}} = 2\pi\sqrt{\frac{2(3.50\ \text{m})}{3\lvert -9.81\ \text{m/s}^2\rvert}}$ $T \cong 3.0\underline{6}4\ \text{s}\ (\cong 3.06\ \text{s})$ Data: $m = 8.50$ kg $\ell = 3.50$ m $g = -9.81\ \text{m/s}^2$	
Chemistry	14.3 Collision Theory https://youtu.be/wbGgIfHsx-I 14.4 Activation Energy https://youtu.be/YacsIU97OFc	Read the Notes to fill in the blanks in the notes
Portuguese	Quiz – Língua Portuguesa | Sinônimo https://www.youtube.com/watch?v=1RseRc7AbIA	Quiz - Clique (click) no link abaixo e responda as perguntas. Não se esqueça de enviar! https://forms.gle/zh8jfEBaiueaJedD6

Homework_Day 3 (7 July 2021)

Subject	Click on the Youtube Links	Things to Note
English	**Zoom Lesson (2pm to 4pm)**	
Mathematics	Zoom Lesson from 2pm to 4pm Quadratic inequalities	
Chemistry	Zoom Lesson from 2pm to 4pm	Complete the work assigned in the zoom session
Physics	**Grade 12 Zoom Lesson (2pm to 4pm)** Download notes on: **(Similar to Package 13)** • Chapter 11 – Momentum • Chapter 12 – Periodic Motion	
Portuguese	Quiz – Língua Portuguesa | Antônimo https://www.youtube.com/watch?v=9fwMaVOAsUQ	Quiz - Clique (click) no link abaixo e responda as perguntas. Não se esqueça de enviar! https://forms.gle/95xyHboEDVxHZgMfA

Homework_Day 4 (8 July 2021)

Subject	Click on the Youtube Links	Things to Note
English	**Article-a-Day Week →** **Important Asian American Figures** Do you know any of these Asian Americans? - Kalpana Chawla - Yo-Yo Ma - Fred Korematsu - Dr. Chien-Shiung Wu - Daniel Inouye - Dr. Sammy Lee - Kristi Yamaguchi **Click →** **www.readworks.org/student** 1. **E**nter class code **55QG3L** 2. Click on YOUR NAME. 3. The default password is **1234.** 4. Look for **Important Asian American Figures** 5. **Choose an article on another Asian American and find out what makes him or her important.** **After reading the article, type in the BOOK of KNOWLEDGE (minimum of 50 words) what new knowledge you have gained from the reading the article.** In your English exercise book, write the meaning of the words in blue found in the article (If any)	
Mathematics	Quadratic inequalities	Copy worked Example 17 and do Practise Now 17 in Math 1
Chemistry	14.5 Factors that affect the reaction rates https://youtu.be/-4HXaUBbv04	Read the Notes to fill in the blanks in the notes
Physics	12B Periodic Motion and the pendulum Read 12.10 (Page 277 – 278) Watch Dampening https://www.youtube.com/watch?v=xuH2Ul27lqE	With the help of the glossary (pages 710 to 728) Write down the definitions of the following words in your science exercise book: • Damped harmonic oscillator • Over-damped oscillation • Critically damped

	Damped Harmonic Oscillator https://www.youtube.com/watch?v=0lWG2yzqnSs	Do Section 12C Q1 – Q4
Portuguese	Quiz – Língua Portuguesa | Quiz de Português https://www.youtube.com/watch?v=QXUuDA8UNjo	Quiz - Clique (click) no link abaixo e responda as perguntas. Não se esqueça de enviar! https://forms.gle/fkRVfHr16MkcuF2p9

Homework_Day 5 (9 July 2021)

Subject	Click on the Youtube Links	Things to Note
English	**Vocabulary Activity** **Click →** **www.readworks.org/student** 1. Enter class code **55QG3L** 2. Click on YOUR NAME. 3. The default password is **1234.** 4. Look for **Developing Possible Solutions** Complete the vocab activity assigned and write the vocab words in the exercise book. Form a sentence with the vocab word given.	
Mathematics	Quadratic inequalities	Copy worked Example 18 and do Practise Now 18 in Math 1
Chemistry	Daily application of chemical kinetics https://youtu.be/hAJ7RFOc6VM	**Read the Notes to fill in the blanks in the notes** **Read Facets of Chemistry – Spontaneous Combustion** Write at least 3 things you have learnt in this article. **Do 14 A Section Review #1-8 in your notebook**
Physics	12B Periodic Motion and the pendulum Read 12.11 (Page 278 – 280) Watch What is Resonance? https://youtu.be/ATRzwhk7UvY	With the help of the glossary (pages 710 to 728) Write down the definitions of the following words in your science exercise book: • Natural oscillation Frequency • Driven Oscillation • Resonance Do Section 12C Q5 – Q6
Portuguese	10 palavras de uso comuns em conversações https://www.youtube.com/watch?v=oItYzaxS3vU	Copia 5 palavra e faça com frases no seu caderno Português!