



## Grade 12

### School-without-Walls Package 12 (14 June to 18 June 2021)

Homework\_Day 1 (14 June 2021)

Subject	Click on the Youtube Links	Things to Note
English	Form sentences with the following words. <ol style="list-style-type: none"><li>1. Presenter</li><li>2. very visual</li><li>3. paid for</li><li>4. combination of</li><li>5. humour</li></ol>	
Mathematics	Download Math Notes for <a href="#">Grade 12 Nature of roots of a Quadratic Equation</a> View Nature of roots of Quadratic Equations <a href="https://youtu.be/VTQSGYngw1Y">https://youtu.be/VTQSGYngw1Y</a>	Review what we have learnt about Quadratic Equations. Copy and complete page 1 of the notes in the Math 1
Chemistry	Section Review	Do 13B Section review # 1 to 5 in your chemistry notebook.
Physics	Check your answers to Chapter 11 Review Questions 35 - 36 and do your corrections in your science exercise book.	

35. A 1.00 kg ball traveling at a velocity of 3.00 m/s west strikes a wall and rebounds with a velocity of 3.00 m/s east. The ball contacts the wall for 0.0100 s.

a. What is the ball's momentum before it hits the wall?

$$p_{\text{ball } 1} = mv_1$$

$$p_{\text{ball } 1_{\text{e-w}}} = mv_{1x} = (1.00 \text{ kg})(-3.00 \text{ m/s})$$

$$p_{\text{ball } 1_{\text{e-w}}} = -3.00 \text{ kg}\cdot\text{m/s}$$

$$p_{\text{ball } 1} = 3.00 \text{ kg}\cdot\text{m/s west}$$

Data:

$$m = 1.00 \text{ kg}$$

$$v_1 = 3.00 \text{ m/s west}$$

$$v_2 = 3.00 \text{ m/s east}$$

$$\Delta t = 0.0100 \text{ s}$$

b. What is the ball's momentum after it hits the wall?

$$p_{\text{ball } 2} = mv_2$$

$$p_{\text{ball } 2_{\text{e-w}}} = mv_{2x} = (1.00 \text{ kg})(3.00 \text{ m/s})$$

$$p_{\text{ball } 2_{\text{e-w}}} = +3.00 \text{ kg}\cdot\text{m/s}$$

$$p_{\text{ball } 2} = 3.00 \text{ kg}\cdot\text{m/s east}$$

36. A 0.400 kg cart traveling 0.0750 m/s to the right encounters an ideal spring and compresses it. In the next 0.125 s, the spring exerts an average force of 0.480 N to the left on the cart.

Data:

$$m = 0.400 \text{ kg}$$

$$v_1 = 0.0750 \text{ m/s right}$$

$$\Delta t = 0.125 \text{ s}$$

$$F_s = 0.480 \text{ N left}$$

a. What is the cart's momentum before it reaches the spring?

$$p_{\text{cart bfr}} = mv_1$$

$$p_{\text{cart bfr},x} = mv_{1,x} = (0.400 \text{ kg})(+0.0750 \text{ m/s})$$

$$p_{\text{cart bfr},x} = +0.0300 \text{ kg}\cdot\text{m/s}$$

$$p_{\text{cart bfr}} = 0.0300 \text{ kg}\cdot\text{m/s to the right}$$

b. What is the change in the cart's momentum as a result of the encounter?

$$\Delta p_{\text{cart}} = I = F_{\text{avg}} \Delta t$$

$$\Delta p_{\text{cart},x} = F_{\text{avg},x} \Delta t = (-0.480 \text{ N})(0.125 \text{ s})$$

$$\Delta p_{\text{cart},x} = -0.0600 \text{ kg}\cdot\text{m/s}$$

$$\Delta p_{\text{cart}} = 0.0600 \text{ kg}\cdot\text{m/s to the left}$$

c. What is the cart's momentum after it leaves the spring?

$$p_{\text{cart aft}} = \Delta p_{\text{cart}} + p_{\text{cart bfr}}$$

$$p_{\text{cart aft},x} = \Delta p_{\text{cart},x} + p_{\text{cart bfr},x} = (-0.0600 \text{ kg}\cdot\text{m/s}) + (0.0300 \text{ kg}\cdot\text{m/s})$$

$$p_{\text{cart aft},x} = -0.0300 \text{ kg}\cdot\text{m/s}$$

$$p_{\text{cart aft}} = 0.0300 \text{ kg}\cdot\text{m/s to the left}$$

d. What is the cart's velocity after it leaves the spring?

$$v_{\text{cart aft}} = \frac{p_{\text{cart aft}}}{m}$$

$$v_{\text{cart aft},x} = \frac{p_{\text{cart aft},x}}{m} = \frac{-0.0300 \text{ kg}\cdot\text{m/s}}{0.400 \text{ kg}}$$

$$v_{\text{cart aft},x} = -0.0750 \text{ m/s}$$

$$v_{\text{cart aft}} = 0.0750 \text{ m/s to the left}$$

Portuguese

**Conteúdo:** SE APASSIVANTE

**Objetivo:** Estudantes pode ser:  
Transformar as frases para se apassivante.

- Se apassivante | Português On-line.

<https://youtu.be/wawy4SITIZM>

- Click on [Se apassivante](#) to read the worksheet.



SWW Package 12 -  
Port - Se apassivante

Prova - Clique (click) no link abaixo e responda as perguntas. Não se esqueça de enviar!

<https://forms.gle/rqjX1CGnjp7wP8A8>

Não esqueça! Copia exercício de PDF no seu caderno Português!

## Homework\_Day 2 (15 June 2021)

Subject	Click on the Youtube Links	Things to Note
Special (Entrepreneurship)	<p><b>Primers Zoom Session #3</b> with 60<sup>th</sup> BB Company Primers In Singapore</p> <p><b>Time: 4pm to 5.30pm</b></p> <p>Meeting ID: 81486734863 Passcode: YBBTLSGC</p>	
Portuguese	<p>15 Questões que você deve saber.</p> <p><a href="https://www.youtube.com/watch?v=jwSaKWp2wwE">https://www.youtube.com/watch?v=jwSaKWp2wwE</a></p>	<p>Prova - Clique (click) no link abaixo e responda as perguntas. Não se esqueça de enviar!</p> <p><a href="https://forms.gle/yLu3efQc88jjTiv87">https://forms.gle/yLu3efQc88jjTiv87</a></p>

## Homework\_Day 3 (16 June 2021)

Subject	Click on the Youtube Links	Things to Note
English	<p><b>Zoom Lesson (2pm to 4pm)</b></p>	
Mathematics		
Chemistry		
Physics		
Portuguese	<p>10 palavras de matemática que você deve conhecer.</p> <p><a href="https://www.youtube.com/watch?v=eH3YQnIbK6I">https://www.youtube.com/watch?v=eH3YQnIbK6I</a></p>	<p>Prova - Clique (click) no link abaixo e responda as perguntas. Não se esqueça de enviar!</p> <p><a href="https://forms.gle/gm6zDNHECe8J67Wf6">https://forms.gle/gm6zDNHECe8J67Wf6</a></p>

# Homework\_Day 4 (17 June 2021)

Subject	Click on the Youtube Links	Things to Note
English	<b>Readworks Article</b>  Click → <a href="http://www.readworks.org/student">www.readworks.org/student</a>  1. Enter class code <b>55QG3L</b> 2. Click on YOUR NAME. 3. The default password is <b>1234</b> . 4. Look for <b>Malai's Mission</b> (Life Science 999 Words Fiction)  In your English exercise book, write the meaning of the words in blue found in the article (If any)	
Mathematics	Nature of roots of a Quadratic Equation	Copy page 2 and 3 of the notes in the Math 1  Do Practise Now 5 in the Math 1
Chemistry	Section Review	Do 13B Section review # 4 to 6 in your chemistry notebook.

**Physics**

Check your answers to Chapter 11 Review Questions 37 - 38 and do your corrections in your science exercise book.

37. A 975 kg car travels northeast at 8.00 m/s.

a. What is its momentum?

Assume that NE is the direction of the positive x-axis.

$$p_{\text{car}} = mv_1$$

$$p_{\text{car}x} = mv_{1x} = (975 \text{ kg})(8.00 \text{ m/s})$$

$$p_{\text{car}x} = +7.80 \times 10^3 \text{ kg}\cdot\text{m/s}$$

$$p_{\text{car}} = 7.80 \times 10^3 \text{ kg}\cdot\text{m/s NE}$$

Data:

$$m = 975 \text{ kg}$$

$$v_1 = 8.00 \text{ m/s northeast}$$

$$v_2 = 0 \text{ m/s}$$

b. What impulse is needed to stop the car?

$$I = \Delta p_{\text{car}}$$

$$I_x = \Delta p_{\text{car}x} = 0 \text{ kg}\cdot\text{m/s} - p_{\text{car}x}$$

$$I_x = -7.80 \times 10^3 \text{ kg}\cdot\text{m/s}$$

$$I = 7.80 \times 10^3 \text{ kg}\cdot\text{m/s SW}$$

c. What force is needed to stop the car in 10.0 s?

$$F_x = \frac{I_x}{\Delta t} = \frac{-7.80 \times 10^3 \text{ kg}\cdot\text{m/s}}{10.0 \text{ s}}$$

$$F_x = -780. \text{ N}$$

$$F = 780. \text{ N SW}$$

d. How long would it take a  $7.80 \times 10^3 \text{ N}$  force to stop the car?

$$\Delta p_x = I_x = F_x \Delta t$$

$$\Delta t = \frac{I_x}{F_x} = \frac{-7.80 \times 10^3 \text{ kg}\cdot\text{m/s}}{-7.80 \times 10^3 \text{ N}}$$

$$\Delta t = 1.00 \text{ s}$$

Data:

$$F = 7.80 \times 10^3 \text{ SW}$$

38. A 10.0 g bullet leaves the muzzle of a 4.00 kg rifle with a velocity of 850. m/s east.

a. What is the bullet's momentum?

$$p_b = m_b v_b$$
$$p_{b;E} = m_b v_{b;E-W} = (0.010 \text{ kg})(+850 \text{ m/s})$$
$$p_{b;E} = +8.50 \text{ kg}\cdot\text{m/s}$$
$$p_b = 8.50 \text{ kg}\cdot\text{m/s east}$$

Data:

$$m_b = 10.0 \text{ g}$$
$$= 0.010 \text{ kg}$$
$$v_b = 850 \text{ m/s east}$$

b. What is the rifle's momentum?

$$\Delta p_r = -\Delta p_b$$
$$p_r = 8.50 \text{ kg}\cdot\text{m/s west}$$

c. What is the recoil velocity of the rifle?

$$v_r = \frac{p_r}{m_r}$$
$$v_{rx} = \frac{p_{rx}}{m_r} = \frac{-8.50 \text{ kg}\cdot\text{m/s}}{4.00 \text{ kg}}$$
$$v_{rx} = -2.125 \text{ m/s}$$
$$v_r = 2.125 \text{ m/s } (\approx 2.13 \text{ m/s}) \text{ west}$$

Data:

$$m_r = 4.00 \text{ kg}$$

d. If the explosion took 0.00200 s, how much force does the rifle exert on the rifleman's shoulder?

$$F_{r \rightarrow m} = \frac{\Delta p_r}{\Delta t}$$
$$F_{r \rightarrow m_x} = \frac{\Delta p_{rx}}{\Delta t} = \frac{-8.50 \text{ kg}\cdot\text{m/s}}{0.00200 \text{ s}}$$
$$F_{r \rightarrow m_x} = -4250 \text{ N}$$
$$F_{r \rightarrow m} = 4250 \text{ N west}$$

Data:

$$\Delta t = 0.00200 \text{ s}$$

Portuguese

10 palavras em português mais difíceis de pronunciar  
<https://www.youtube.com/watch?v=3-dtx-1PUH4>

Prova - Clique (click) no link abaixo e responda as perguntas. Não se esqueça de enviar!  
<https://forms.gle/xVihziHgY352tCH58>

# Homework\_Day 5 (18 June 2021)

Subject	Click on the Youtube Links	Things to Note
<b>Special Program (Openness)</b>	<b><u>Finale</u></b> <b>Primers Zoom Session #4 with 60<sup>th</sup> BB Company Primers In Singapore</b> <b>Time: 9.30am to 11am</b> Meeting ID: 85318363362 Passcode: YBBTLSGC	
<b>Portuguese</b>	10 Frases em português para surpreender os falantes nativos <a href="https://www.youtube.com/watch?v=YWizScX5UBM">https://www.youtube.com/watch?v=YWizScX5UBM</a>	Copia 5 frases de português e Inglês no seu caderno Português!