

# Finance and Workplace Math 110

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Happy Easter Anya, Austin, Cynthia, Ethan, Faith, George, Harley, Ivy, Josie, Lukas, Nathan, Sam and Valery! I hope you were all able to enjoy a bit of chocolate while following guidelines to stay safe. Remember to keep your minds and bodies active too. If you are experiencing difficulties at this time, please email me at the address above and I can set you up with someone who can help.

How was your first week of Home Learning? I assume you all remembered trig ratios and how to use them to solve problems since I did not hear from anyone. Ready for some more challenging questions to solve? As always, if you need help accessing resources or finding solutions, please feel free to email me any time of day or evening. I check messages often and will get back to you within a couple of hours. Worked solutions can be found on the lastt page.

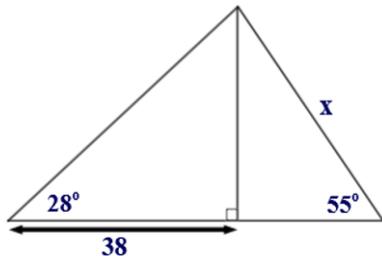
Here are the links to videos to help you solve the questions below. I have also included an Easter puzzle to solve for Games Day. Good luck!

<https://www.youtube.com/watch?v=oc1eVtbJoP0>

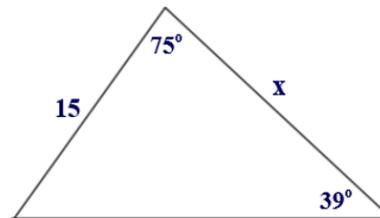
[https://www.youtube.com/watch?v=mS4Cijf0WRM&feature=emb\\_title](https://www.youtube.com/watch?v=mS4Cijf0WRM&feature=emb_title)

1. Find the length of the side labeled  $x$  in each of the following. Round your answers to the nearest tenth.

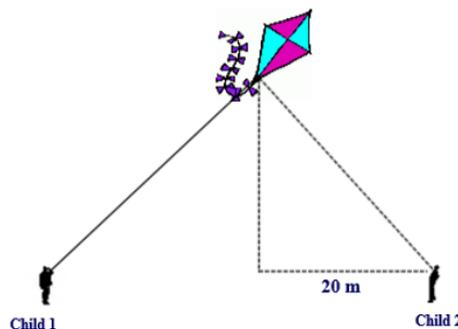
a.



b.



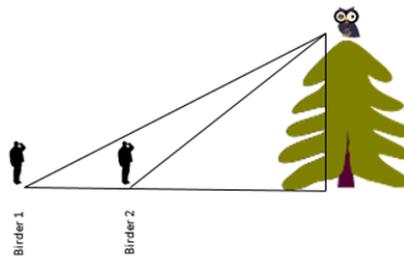
2. In the park a child is flying her kite using 35 m of string which forms an angle of elevation of  $40^\circ$ . A second child stands 20 m to the east of the kite, watching the kite floating in the air. What is the angle of elevation formed when the second child looks at the kite? Include a completed diagram with your answer.



<https://www.youtube.com/watch?v=LN0cGDyyH7k>

<https://www.youtube.com/watch?v=j0uwY8zpMeg>

3. Two birding enthusiasts spot a rarely seen Northern White-faced owl at the top of a nearby tree. The angle of elevation for the first birder is  $28^\circ$  and the angle of elevation for the second birder is  $47^\circ$ . If the tree where the owl is sitting has been measured to be 145 ft tall, how far apart are the two birders standing? Include a completed diagram with your answer.



4. One boat is 700 m from the shoreline cliff. The angle of elevation to the top of the cliff for that boat is  $40^\circ$ . A second boat is sitting closer to the shoreline with an angle of elevation of  $50^\circ$ .
- Draw a diagram to represent this situation.
  - How tall is the cliff on the shoreline?
  - How far apart are the two boats?

5. From a point on the ground 500 ft from the base of a building, an observer finds that the angle of elevation to the top of the building is  $24^\circ$  and that the angle of elevation to the top of a flagpole at the top of the building is  $27^\circ$ . Determine the height of the flagpole. Include a diagram as part of your answer.

## Games Day –

Amy, Ben, Carrie and David went on an Easter egg hunt. They found red, purple, yellow and green colored eggs.

The number of purple eggs that they found was three more than the number of green eggs. The number of red eggs was twice the number of green eggs. The number of yellow eggs was two more than the number of red eggs.

Amy found as many eggs as Ben did.

Carrie found three eggs more than Amy did.

David found four eggs more than Ben did.

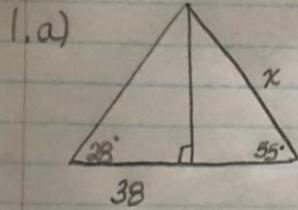
Carrie, whose favorite color is red, gathered only red colored eggs.

None of the other kids gathered red colored eggs.

- How many eggs of each color did they find?
- How many eggs did each person find?

Have a great week everyone....talk soon 😊

# Solutions

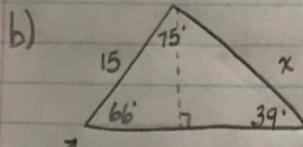


$$\tan 28^\circ = \frac{\text{opp}}{38}$$

$$\text{opp} = 20.2$$

$$\sin 55^\circ = \frac{\text{opp} (20.2)}{x}$$

$$x = 24.7$$



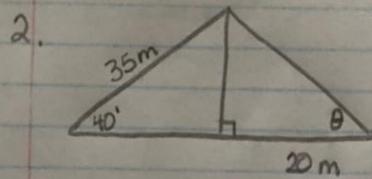
$$\sin 66^\circ = \frac{\text{opp}}{15}$$

$$\text{opp} = 13.7$$

$$\sin 39^\circ = \frac{\text{opp} (13.7)}{x}$$

$$x = 21.8$$

$$180^\circ - 75^\circ - 39^\circ =$$



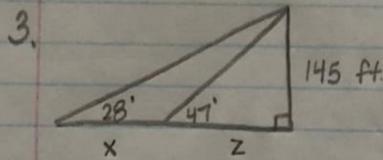
$$\sin 40^\circ = \frac{\text{opp}}{35}$$

$$\text{opp} = 22.5$$

$$\tan \theta = \frac{\text{opp} (22.5)}{20}$$

$$\tan \theta = 1.12$$

$$\theta = 48^\circ$$

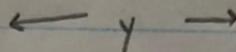


$$\tan 28^\circ = \frac{145}{x}$$

$$y = 272.7$$

$$\tan 47^\circ = \frac{145}{z}$$

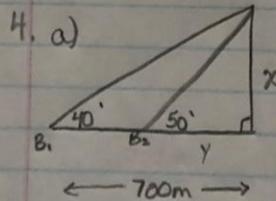
$$z = 135.2$$



$$x = y - z$$

$$x = 272.7 - 135.2$$

$$x = 137.5 \text{ ft}$$



b)  $\tan 40^\circ = \frac{x}{700}$

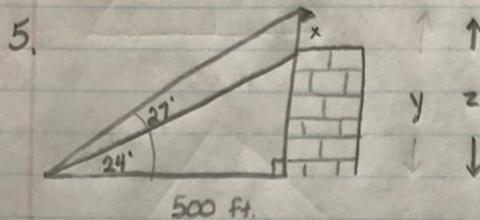
$$x = 587.4 \text{ m}$$

c)  $\tan 50^\circ = \frac{x}{y}$  (587.4)

$$y = 492.9 \text{ m}$$

$$700 \text{ m} - 492.9 \text{ m}$$

$$= 207.1 \text{ m}$$



$$\tan 24^\circ = \frac{y}{500}$$

$$y = 222.6 \text{ ft}$$

$$\tan 27^\circ = \frac{z}{500}$$

$$z = 254.8 \text{ ft}$$

$$x = z - y$$

$$= 254.8 - 222.6$$

$$= 32.2 \text{ ft}$$