

Name: \_\_\_\_\_

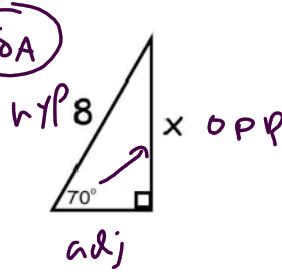
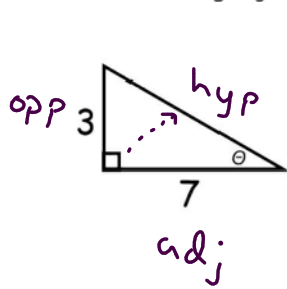
Date: \_\_\_\_\_

Period: \_\_\_\_\_

Mr. Valentino

Aim: How can we calculate the angle of our Dab?

Do Now: Solve for the missing angle and side in each triangle below. Round to the nearest tenth.



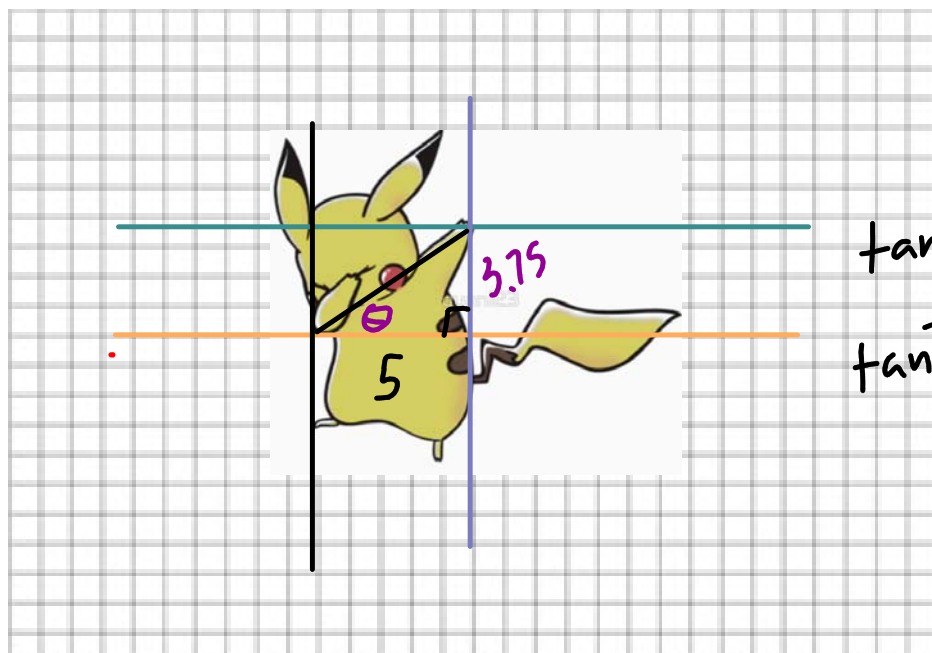
$$\sin 70 = \frac{x}{8}$$

$$x = 8 \sin 70$$

$$x = 7.5$$

$$\tan \theta = \frac{3}{7}$$

$$\tan^{-1} \left( \frac{3}{7} \right) = 23.2^\circ$$



$$\tan \theta = \frac{3.75}{5}$$
$$\tan^{-1}(3.75/5)$$
$$= 37^\circ$$

### How to Calculate the Angle of your DAB!

1. Hit the wrench on the upper right side of your paper. Click paper to change the paper to the graph paper with the smallest boxes.
2. Click + then "take a photo". Have a partner take a picture of your "dab." Try to make your arms as straight as possible. You can dab as low or as high as you'd like! You can make the photo larger if desired but you must be able to see the grid lines outside the photo.
3. Using 1 color, draw a horizontal line from outside the left side of your picture to outside the right side of your picture. Align the line with the grid lines on the paper. Then move your picture so that your elbow is on the line. (hit the text button to move the photo)
4. Draw another horizontal line from outside the left side of your picture to your finger tip. Make sure the line is aligned with the grid lines on the paper (running parallel to them).
5. Using a different color, draw a vertical line from your finger tip down to the grid lines at the bottom of the picture. Draw another vertical line down from your elbow.
6. Using a 3<sup>rd</sup> color, outline your triangle by making straight lines from your elbow to your finger tip. Then draw the other two legs.
7. Estimate the lengths of the legs of the triangle by counting the boxes on the grid.
8. Using the two estimated side lengths, calculate the angle of your dab using trig! Show your work on the picture below. Round to the nearest degree.
9. When you are done, take a screen shot of your work!

Comparing Ratios

1. Change the size of the graph paper to the next to smallest boxes.
2. Estimate the new length of your sides and calculate the angle of your dab here (to the nearest degree):

3. How does your angle size compare to the original angle you found? \_\_\_\_\_

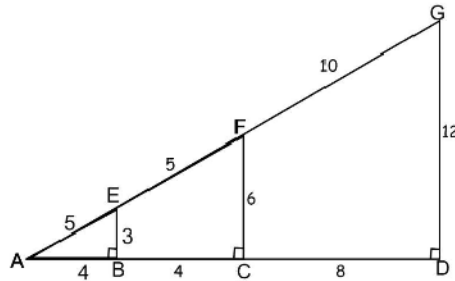
4. What can you say about the ratio of sides for the angle of your dab, no matter how large or small the grid is on the paper?

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5. Use the triangle's below to set up each trig ratio for the specified triangle. Careful with the length of the hypotenuse!



Set up the sine, cosine and tangent ratios for  $\triangle ABE$  using  $\angle A$  as the reference angle.

$\sin(A) =$                        $\cos(A) =$                        $\tan(A) =$

Set up the sine, cosine and tangent ratios for  $\triangle ACF$  using  $\angle A$  as the reference angle.

$\sin(A) =$                        $\cos(A) =$                        $\tan(A) =$

Set up the sine, cosine and tangent ratios for  $\triangle ADG$  using  $\angle A$  as the reference angle.

$\sin(A) =$                        $\cos(A) =$                        $\tan(A) =$

Suppose we dilated the triangle again. What can you say about the ratios for  $\sin(A)$ ,  $\cos(A)$  and  $\tan(A)$ ?

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