

1. A man travels m feet due north at a rate of 4 minutes per mile. He returns due south to his starting point at a rate of 2 miles per minute. Find the average rate in miles per hour for the entire trip. (Show me the steps and solution on the paper)

$$4\text{min/mile}=15\text{mile/h} \quad 2\text{mile/min}=120\text{mile/h}$$

Assume the distance is m

ANSWER: $80/3$

2. In $\triangle ABC$, AB is the diameter of the circle, the circle intersects AC at D . What is the degree of $\angle BOD$? (Show me the steps and solution on the paper)

$$AB = 2\sqrt{2}, \angle B = 60^\circ, \angle C = 75^\circ,$$

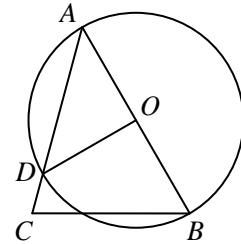
The degree of A is $180^\circ - 60^\circ - 75^\circ = 45^\circ$,

AB is the diameter, O is the center,

So radius $OA = OB = OD$

So the degree of $\angle ADO = 45^\circ$, $\angle AOD = 90^\circ$

ANSWER: $\angle BOD = 90^\circ$



3. How many integers have a reciprocal that is greater than $1/50.1$ and less than $1/\pi$.

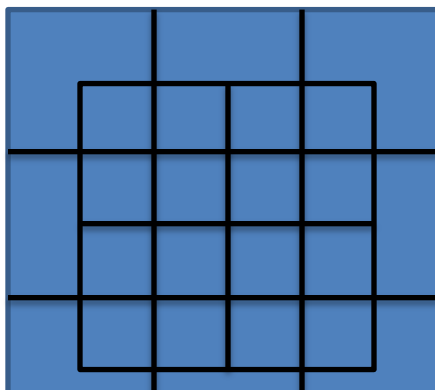
$$1/50.1 < 1/x < 1/\pi$$

$$\pi < x < 50.1$$

because x is integers, so x is from 4 to 50.

ANSWER: there are $(50-4)+1=47$ integers.

- 4.



How many squares in this picture?

ANSWER: 44