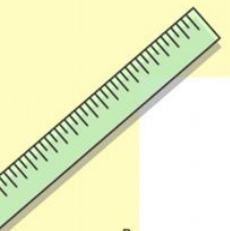


Дарындарға толы қазақ даласы,
Даралыққа бәрінің бар таласы.
Асқар аға – асқар таудай ағамыз,
Шиелінің шетел білген баласы.

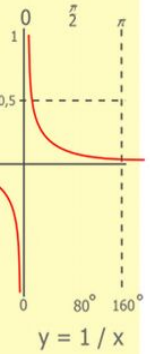
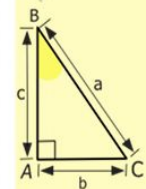
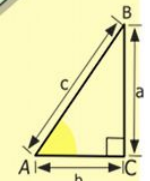
Асқар Жұмаділдаев – физ-мат
ғылымдарының докторы.





Тақырыбы:

Пифагор теоремасы



$$\begin{array}{r} 2500 \\ \times 42 \\ \hline 2100 \\ + 8400 \\ \hline 105000 \end{array}$$

- 2 x 2 = 4
- 3 x 3 = 9
- 4 x 4 = 16
- 5 x 5 = 25
- 6 x 6 = 36
- 7 x 7 = 49
- 8 x 8 = 64
- 9 x 9 = 81



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$b = a + b$$

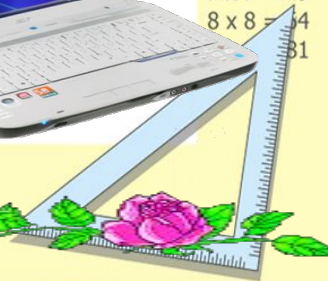
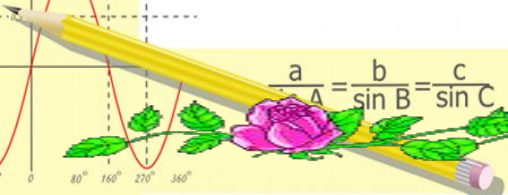
$$\sin 90^\circ = 1$$



$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

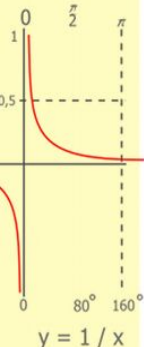
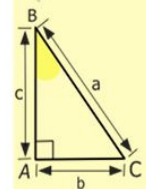
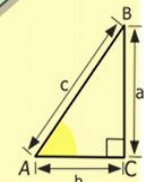
$$\begin{cases} y = 1 \\ x = 70 \end{cases}$$

$$(x+y)$$



Сабақтың мақсаты: оқушылар Пифагор теоремасы бойынша алған білімдерін жинақтай алады.

Күтілетін нәтиже: өткен оқу материалынан алған білімдерін өмірде қолдана алатын болады.



$$\begin{array}{r} 1\ 2\ 5\ 00 \\ \times 4\ 2 \\ \hline 21\ 0 \\ + 84 \\ \hline 105\ 0\ 00 \end{array}$$

- 2 x 2 = 4
- 3 x 3 = 9
- 4 x 4 = 16
- 5 x 5 = 25
- 6 x 6 = 36
- 7 x 7 = 49
- 8 x 8 = 64
- 9 x 9 = 81



$$\frac{a}{A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

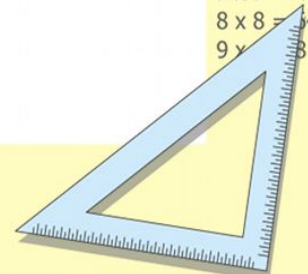
$$\sin 90^\circ = 1$$



$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

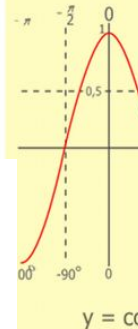
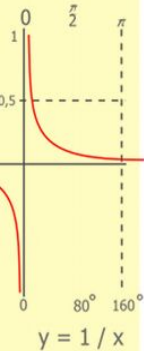
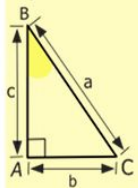
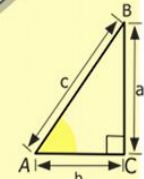
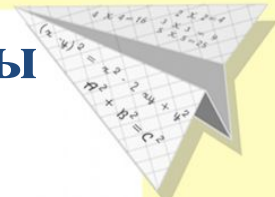
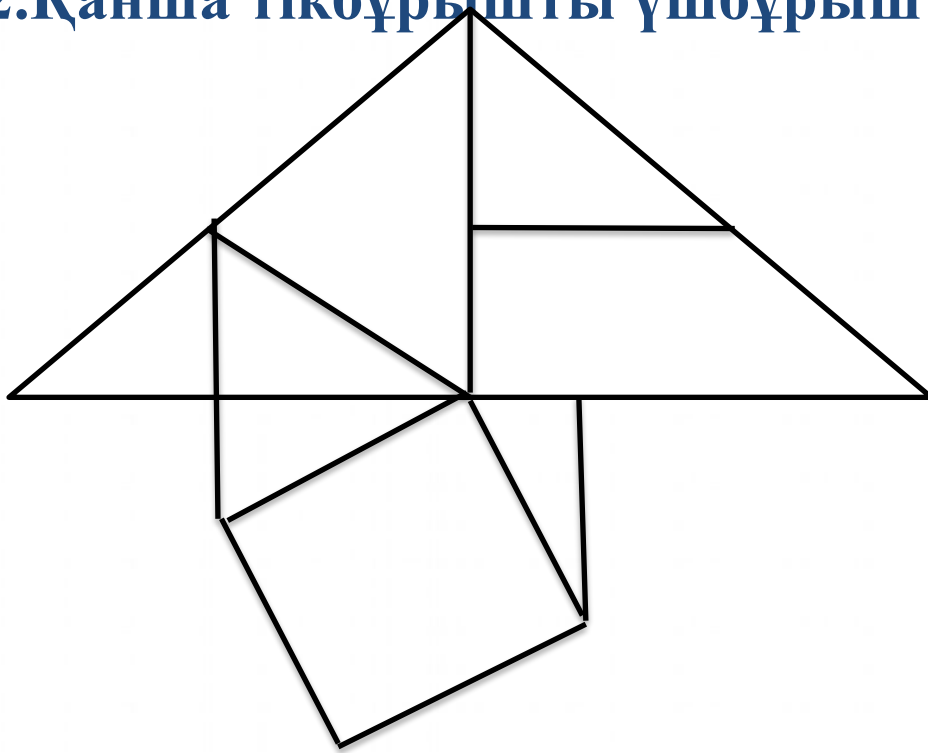
$$(x+y)(x-y) = x^2 - y^2$$



Сұрақ-жауап

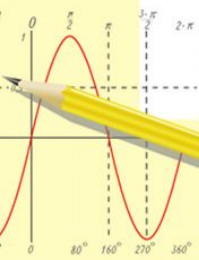
1. Төмендегі сызбада қанша жазықтық фигуралары кескінделген ?

2. Қанша тікбұрышты үшбұрыш бар ?



$$\begin{array}{r} 2500 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 10500 \end{array}$$

$$\begin{array}{l} 2 \times 2 = 4 \\ 3 \times 3 = 9 \\ 4 \times 4 = 16 \\ 5 \times 5 = 25 \\ 6 \times 6 = 36 \\ 7 \times 7 = 49 \\ 8 \times 8 = 64 \\ 9 \times 9 = 81 \end{array}$$



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

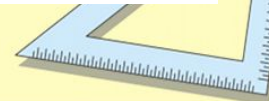
$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

$$\sin 90^\circ = 1$$



$$\begin{array}{l} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{array}$$

$$(x+y)(x-y) = x^2 - y^2$$



НТӘ (НОМИНАЦИЯЛЫҚ ТОПТЫҚ ӘДІС)

1-тапсырма (ауызша)

1. 30 градусқа қарсы жатқан катет

косинусы ..

3. Тік бұрышты үшбұрыштың катеттерінің квадраты....

4. Үшбұрыштың орта сызығы.....

5. Ромбының диагональдары.....

6. Сүйір бұрыштың синусы....

7. $a=6$ және $b=8$ катеттері бойынша тікбұрышты үшбұрыштың гипотенузасын табыңдар.

8. $c=13$ және $b=5$ бойынша тікбұрышты үшбұрыштың катетін тап.

2. Сүйір бұрыштың

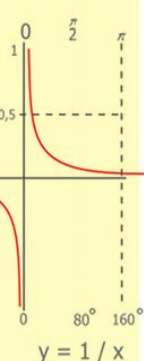
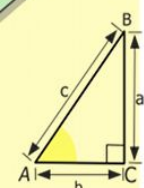
2-тапсырма

1. Өзеннің жағасында жалғыз терек өсіп тұр. Кенеттен жел тұрып, терек сынып түсіп, теректің төбесі өзеннің екінші жағасына түсті. Суретте көрсетілген өлшемдері бойынша теректің ұзындығын табыңыз?

2. Қабырғаға қағылған ағаштың ұшы 3м төменге түсірілді. Егер үй қабырасының биіктігі 11м, ағаштың проекциясы 6м болса, ағаштың ұзындығын табыңдар?

3. Ағаш жерден 30 градус бұрыш жасап 5м сарай үстіне құлады. Ағаштың ұзындығын табыңыз?

4. Өзеннің бір жиегі 30 метрлік жар, ал оның ені 40 м жиегіне дейінгі қашықтық қандай?



$$\begin{array}{r} 1 \\ \times 2500 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 10500 \end{array}$$



$$\frac{a}{A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

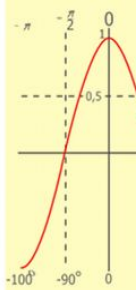
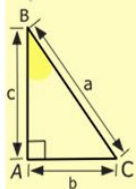
$$\sin 90^\circ = 1$$



$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

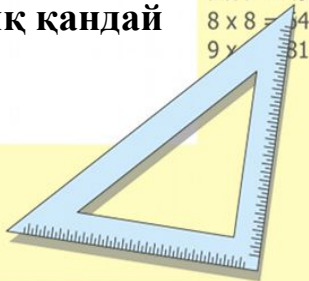
$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

$$(x+y)(x-y) = x^2 - y^2$$



$$y = \cos$$

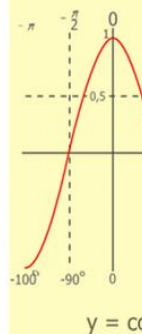
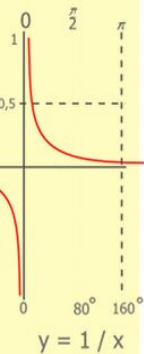
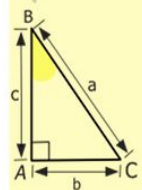
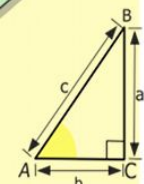
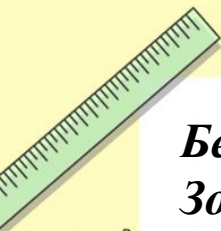
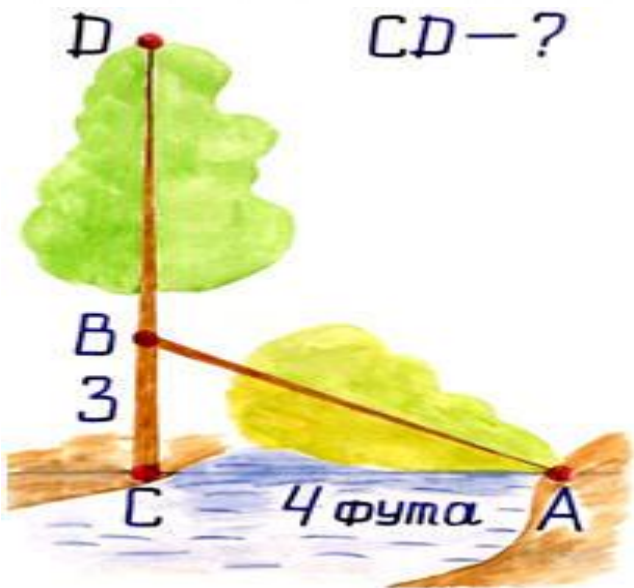
- 2 x 2 = 4
- 3 x 3 = 9
- 4 x 4 = 16
- 5 x 5 = 25
- 6 x 6 = 36
- 7 x 7 = 49
- 8 x 8 = 64
- 9 x 9 = 81



Бекіту кезеңінде PISA типтік тапсырмаларын қолданудың маңыздылығы Зор.

I топ

Өзеннің жағасында жалғыз терек өсіп тұр. Кенеттен жел тұрып, терек сынып түсіп, теректің төбесі өзеннің екінші жағасына түсті. Суретте көрсетілген өлшемдері бойынша теректің ұзындығын табыңыз?



$$\begin{array}{r} 2500 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 105000 \end{array}$$

- 2 x 2 = 4
- 3 x 3 = 9
- 4 x 4 = 16
- 5 x 5 = 25
- 6 x 6 = 36
- 7 x 7 = 49
- 8 x 8 = 64
- 9 x 9 = 81



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

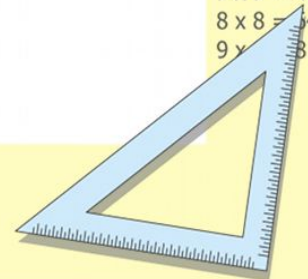
$$\sin 90^\circ = 1$$



$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

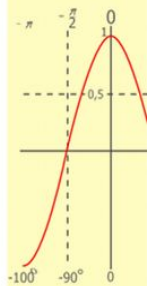
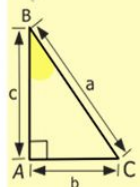
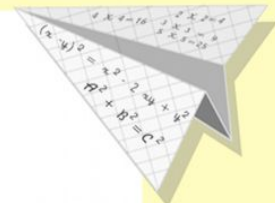
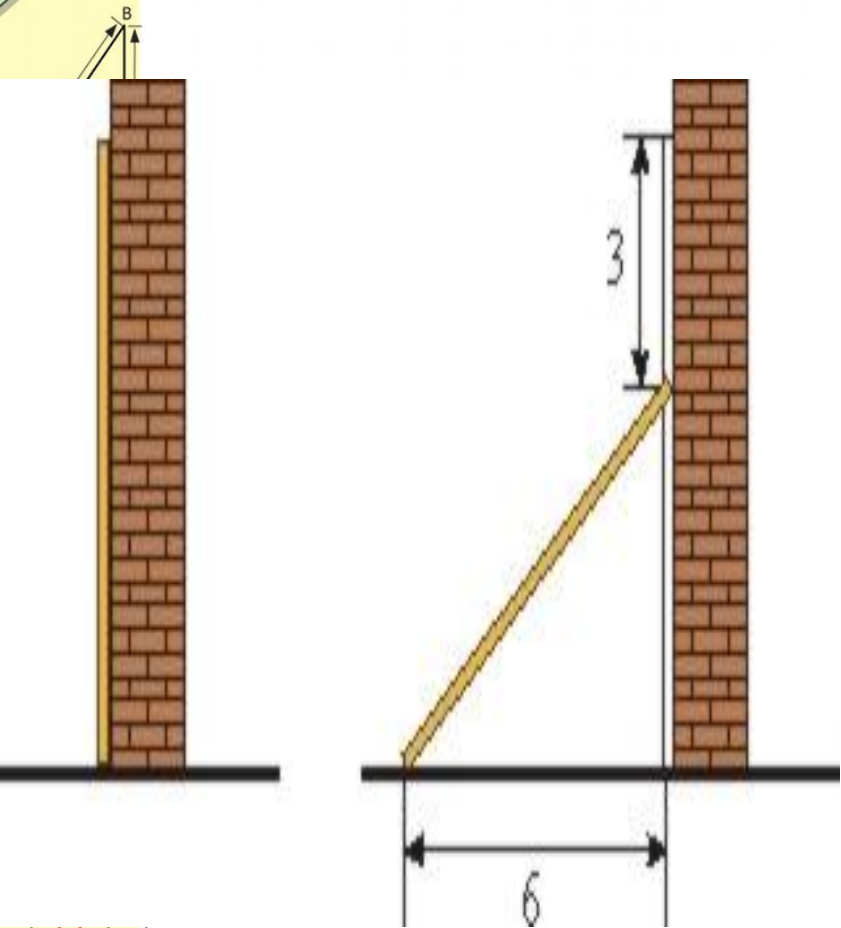
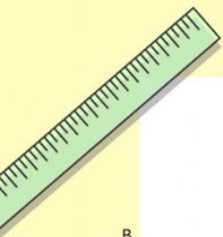
$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

$$(x+y)(x-y) = x^2 - y^2$$



II топ

Қабырғаға қазылған ағаштың ұшы 3м төменге түсірілді. Егер үй қабырасының биіктігі 11м, ағаштың проекциясы 6м болса, ағаштың ұзындығын табыңдар?



$y = \cos$

- $2 \times 2 = 4$
- $3 \times 3 = 9$
- $4 \times 4 = 16$
- $5 \times 5 = 25$
- $6 \times 6 = 36$
- $7 \times 7 = 49$
- $8 \times 8 = 64$
- $9 \times 9 = 81$



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

$$\sin 90^\circ = 1$$

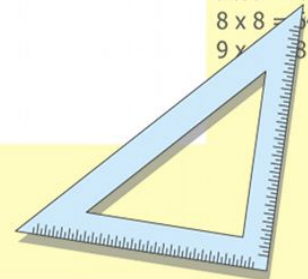


$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

$$\begin{cases} y = 1 \\ x = 25 + 45 \end{cases}$$

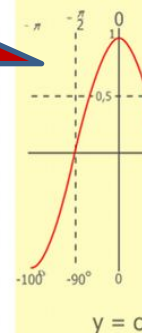
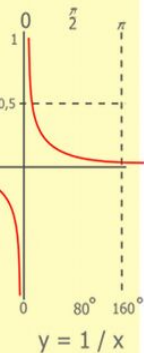
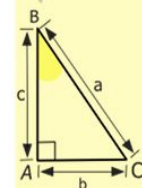
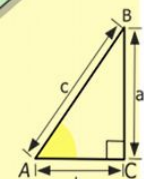
$$x = 70$$

$$(x+y)(x-y) = x^2 - y^2$$



III топ

Ағаш жерден 30 градус бұрыш жасап 5м сарай үстіне құлады. Ағаштың ұзындығын табыңыз?



$$\begin{array}{r} 1 \\ 2500 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 105000 \end{array}$$

- 2 x 2 = 4
- 3 x 3 = 9
- 4 x 4 = 16
- 5 x 5 = 25
- 6 x 6 = 36
- 7 x 7 = 49
- 8 x 8 = 64
- 9 x 9 = 81

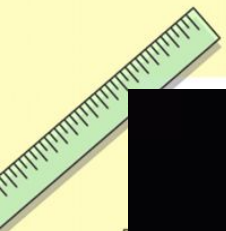
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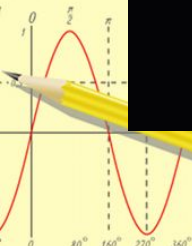
Сергіу сәті

#15

олчәиә гәгури



$$\begin{array}{r} 1500 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 10500 \end{array}$$



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

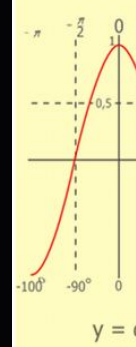
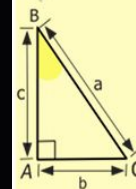
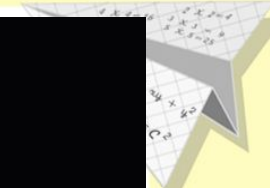
$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

$$\sin 90^\circ = 1$$

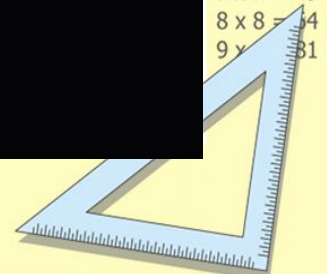


$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

$$(x+y)(x-y) = x^2 - y^2$$



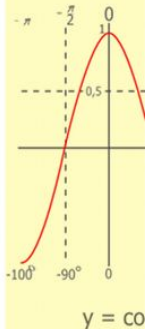
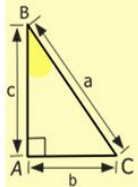
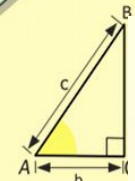
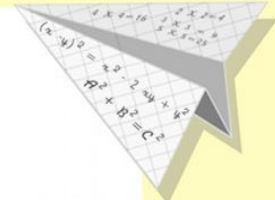
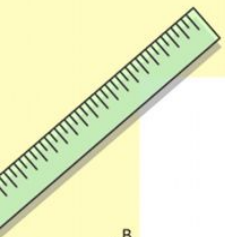
- 2 x 2 = 4
- 3 x 3 = 9
- 4 x 4 = 16
- 5 x 5 = 25
- 6 x 6 = 36
- 7 x 7 = 49
- 8 x 8 = 64
- 9 x 9 = 81



Тарихи мәлімет

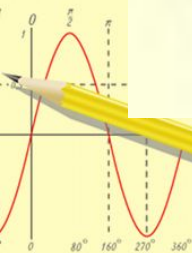
1. Жүз өгіз есебінің тарихы

2. Пифагор (б.э.д 570 – 500 жылдар)



$$\begin{array}{r} 1 \\ 2500 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 10500 \end{array}$$

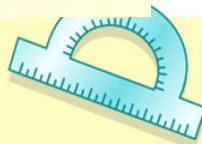
$$\begin{array}{l} 2 \times 2 = 4 \\ 3 \times 3 = 9 \\ 4 \times 4 = 16 \\ 5 \times 5 = 25 \\ 6 \times 6 = 36 \\ 7 \times 7 = 49 \\ 8 \times 8 = 64 \\ 9 \times 9 = 81 \end{array}$$



$$\frac{a}{A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

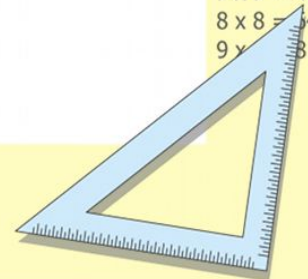
$$\sin 90^\circ = 1$$



$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

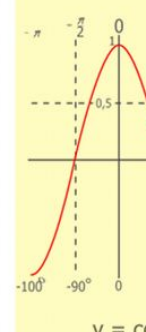
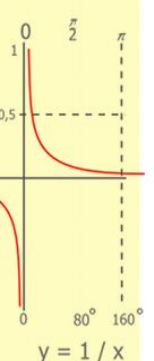
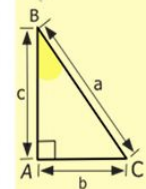
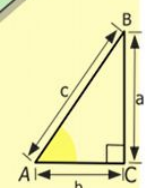
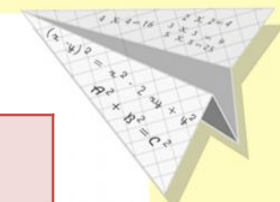
$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

$$(x+y)(x-y) = x^2 - y^2$$



Кестені толтырыңдар

| a | b | | c | |
|---|----|----|----|----|
| 3 | 4 | 25 | 5 | 25 |
| 6 | 8 | | 10 | |
| 5 | 12 | | 13 | |



$$\begin{array}{r} 2500 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 10500 \end{array}$$

- 2 x 2 = 4
- 3 x 3 = 9
- 4 x 4 = 16
- 5 x 5 = 25
- 6 x 6 = 36
- 7 x 7 = 49
- 8 x 8 = 64
- 9 x 9 = 81



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

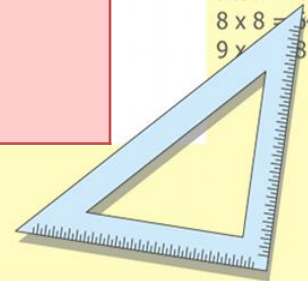
$$\sin 90^\circ = 1$$



$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

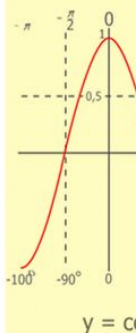
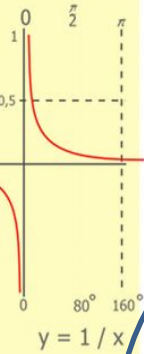
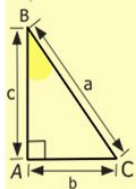
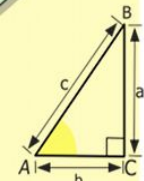
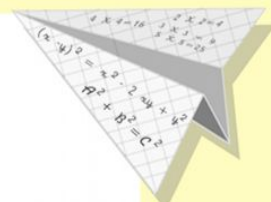
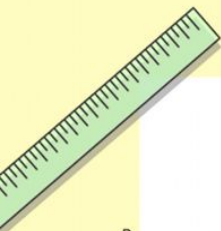
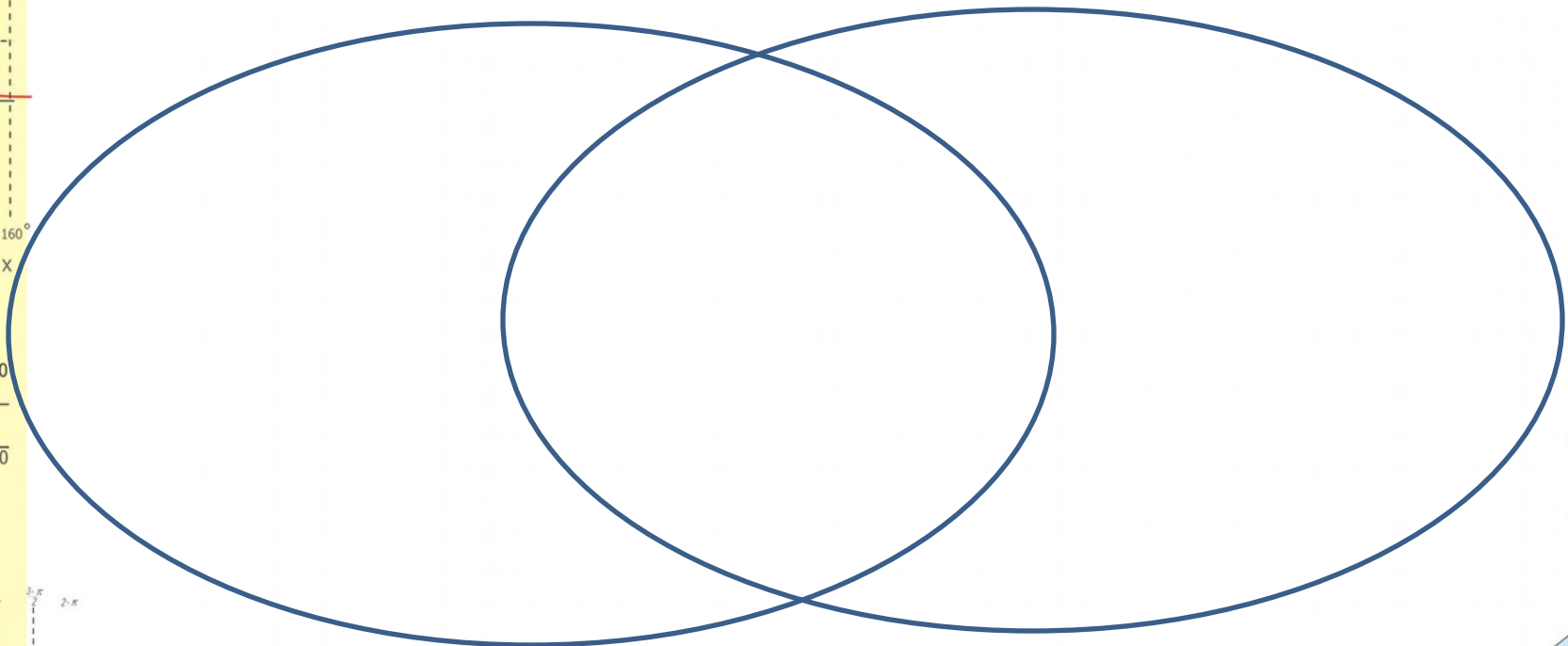
$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

$$(x+y)(x-y) = x^2 - y^2$$



Венн диаграммасы

Кез келген үшбұрыш Ұқсастығы Тікбұрышты үшбұрыш



$$\begin{array}{r} 1 \\ 2500 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 10500 \end{array}$$

- 2 x 2 = 4
- 3 x 3 = 9
- 4 x 4 = 16
- 5 x 5 = 25
- 6 x 6 = 36
- 7 x 7 = 49
- 8 x 8 = 64
- 9 x 9 = 81



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

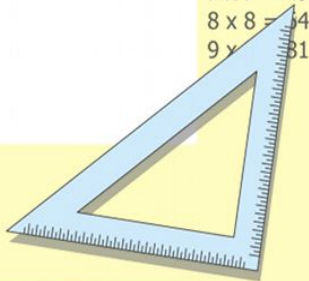
$$\sin 90^\circ = 1$$



$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

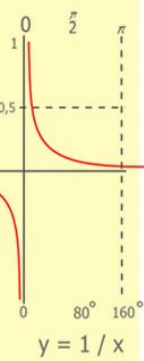
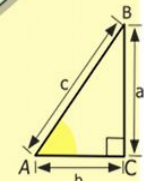
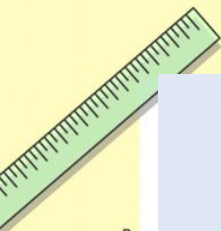
$$(x+y)(x-y) = x^2 - y^2$$



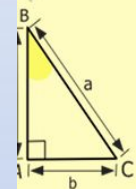
Бағалау

өзін-өзі бағалау

| Аты-жөні | Мен көп нәрсені үйрендім | Мен аз нәрсе үйрендім | Мен ештеңе үйренбедім |
|----------------------------|--------------------------|-----------------------|-----------------------|
| Өз жұмысымды бағалағанда | 3 | 2 | 1 |
| Өз бетімше жұмыс істегенде | 3 | 2 | 1 |



$$\begin{array}{r} 2500 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 105000 \end{array}$$



- $2 \times 2 = 4$
- $3 \times 3 = 9$
- $4 \times 4 = 16$
- $5 \times 5 = 25$
- $6 \times 6 = 36$
- $7 \times 7 = 49$
- $8 \times 8 = 64$
- $9 \times 9 = 81$

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

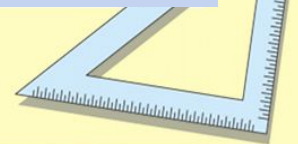
$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

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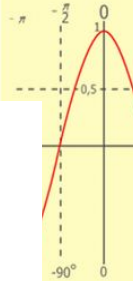
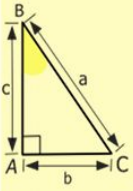
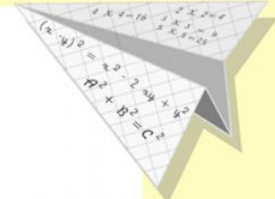
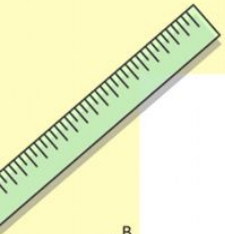
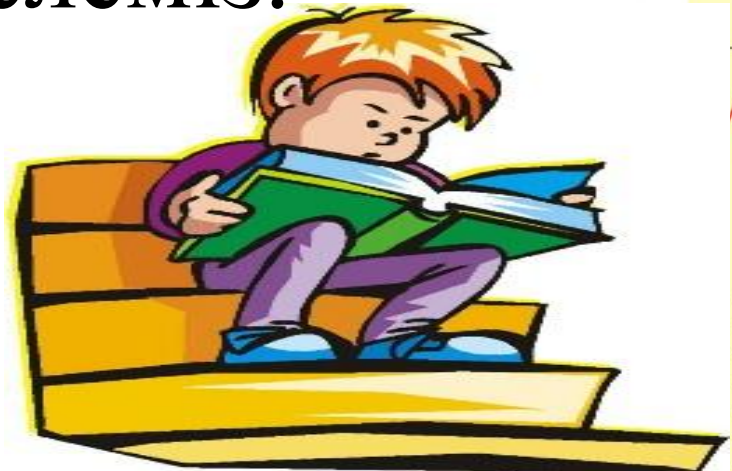
$$\begin{cases} x = 25y + 45 \\ y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

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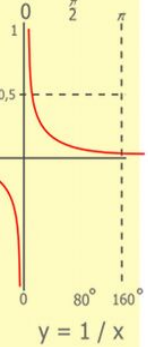
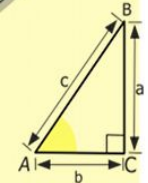
Үйге тапсырма

«Сүйір бұрыштың синусы, тангенісі, жіне котангенсі» тақырыбын оқып келеміз.



$y = \cos$

- 2 = 4
- 3 = 9
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- 7 = 49
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- 9 = 81



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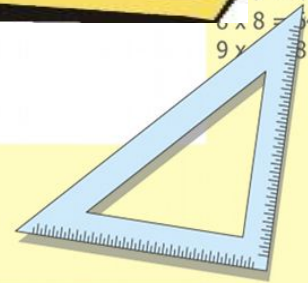
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$$(x+y)(x-y) = x^2 - y^2$$





Зейін қойып
тыңдағандарыңызға
рахмет!