S-G   Geometry   Session 4   6/11

Find the distance between the points:

(-3, 8) and (2, -4)   Next, find the midpoint

Distance formula

$$d = \sqrt{(x_2-x_1)^2 + (y_2-y_1)^2}$$

$$\sqrt{(-3-2)^2 + (8-(-4))^2}$$

$$\sqrt{(-5)^2 + (12)^2}$$

$$\sqrt{25+144}$$

$$\sqrt{169} = \boxed{13}$$

$$\sqrt{80} = \sqrt{80}$$

$$\sqrt{16} \quad \sqrt{5}$$

$$\downarrow$$

$$4\sqrt{5}$$

$$\sqrt{80} = 4\sqrt{5}$$

Midpoint formula

$$\left(\frac{x_2+x_1}{2}, \quad \frac{y_2+y_1}{2} \right)$$

$$\frac{2+(-3)}{2}, \quad \frac{-4+8}{2}$$

$$-\frac{1}{2}, \frac{4}{2} \quad \boxed{\left(-\frac{1}{2}, 2\right)}$$

13 cm

4 cm
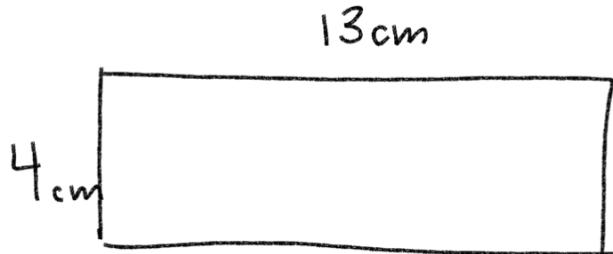
Area: $(4\,cm)(13\,cm)$

$52\,cm^2$

Perimeter:

$2(4\,cm) + 2(13\,cm)$

$8\,cm + 26\,cm$

$34\,cm$

8 cm

$d = 2r$

Circumference: πd

$2\pi r$

$2\pi(8\,cm) = 16\pi\,cm$

Area: πr^2

$\pi(8\,cm)^2$ $64\pi\,cm^2$

12

6   2

$10 - 8 = 2$

Find the perimeter

10

8
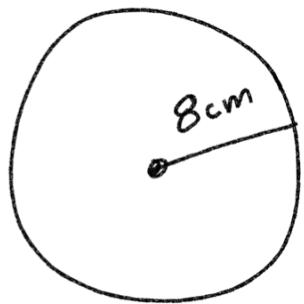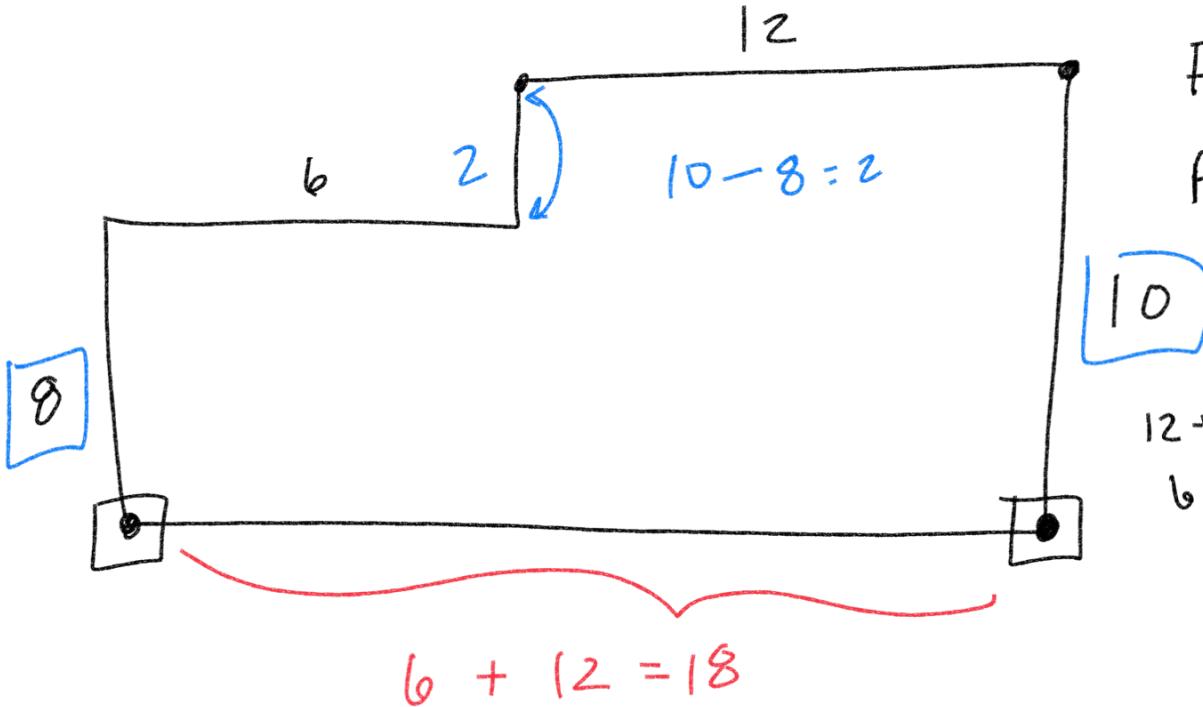
$12 + 10 + 18 + 8 + 6 + 2 =$

56 units

$6 + 12 = 18$

Find area.

12

6

10

8
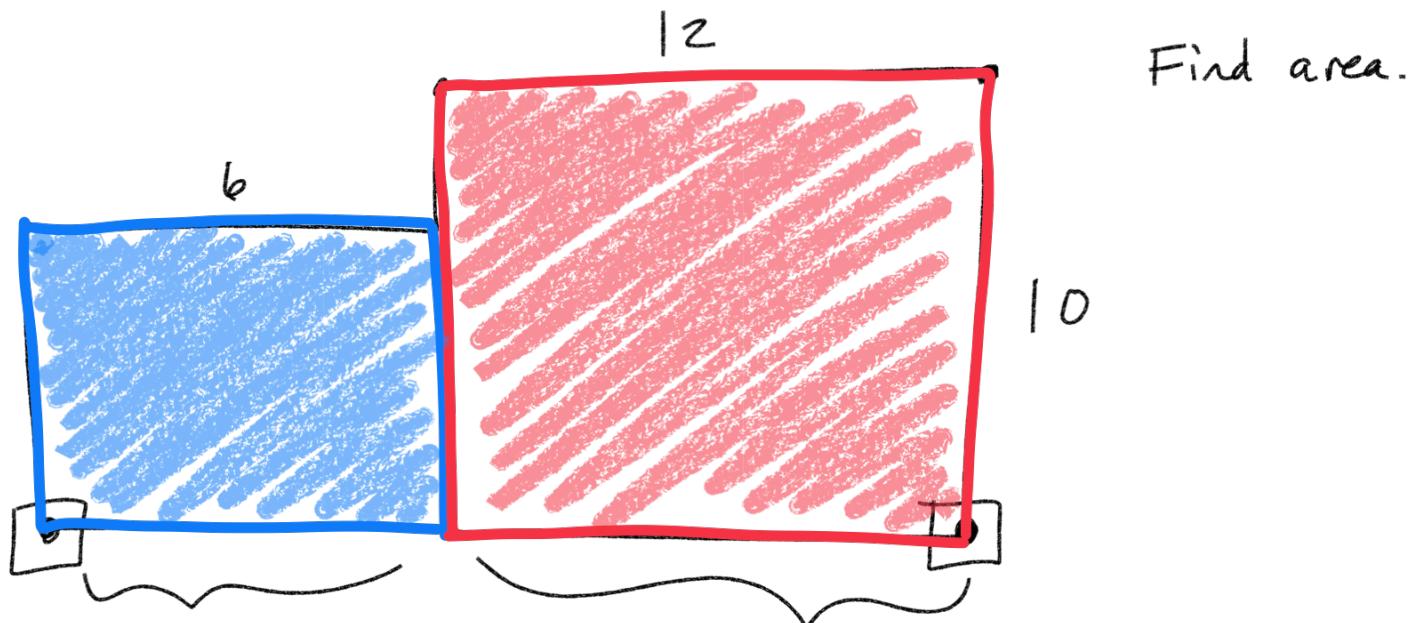
$8*6 = 48 \text{units}^2$

$12*10 = 120 \text{units}^2$

168units^2

12

2

$12*2 = 24 \text{units}^2$

6

$+$

8

0

$8*18 = 144 \text{units}^2$

168units^2

18

12

8

6

2

18
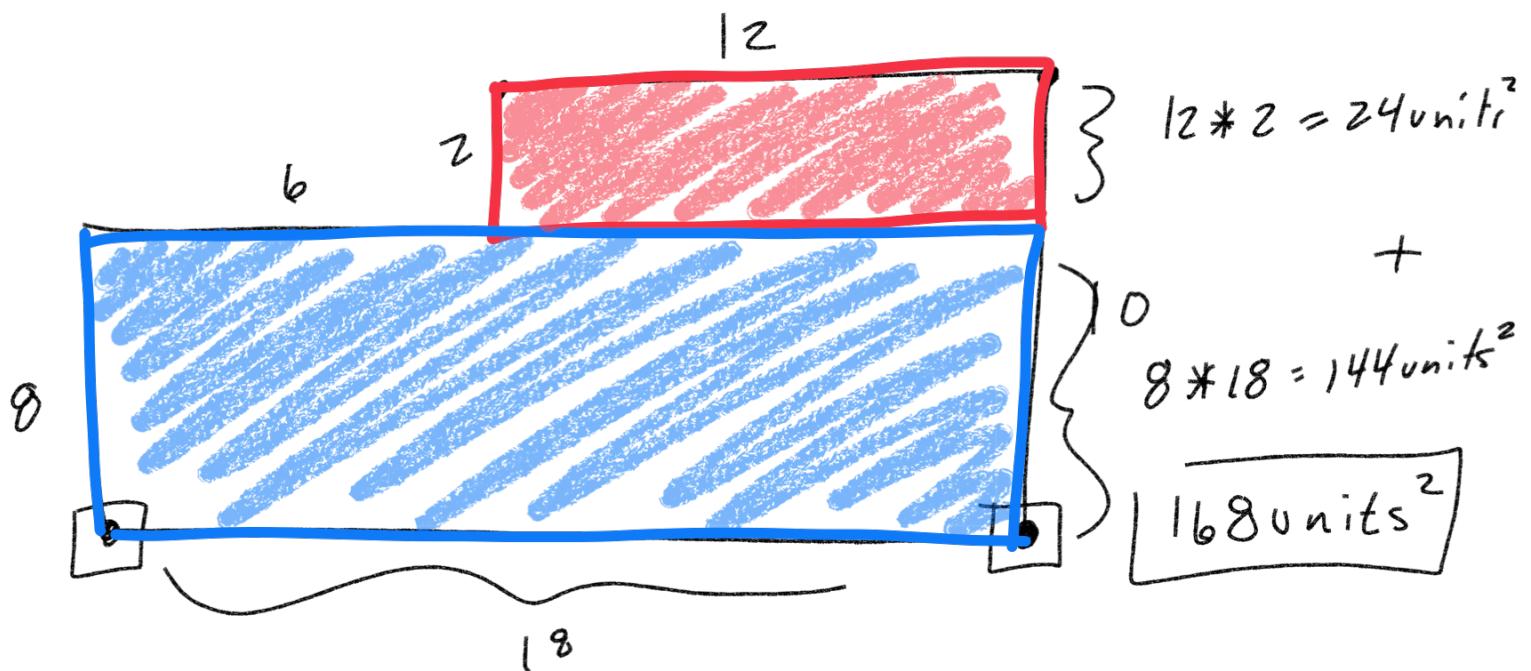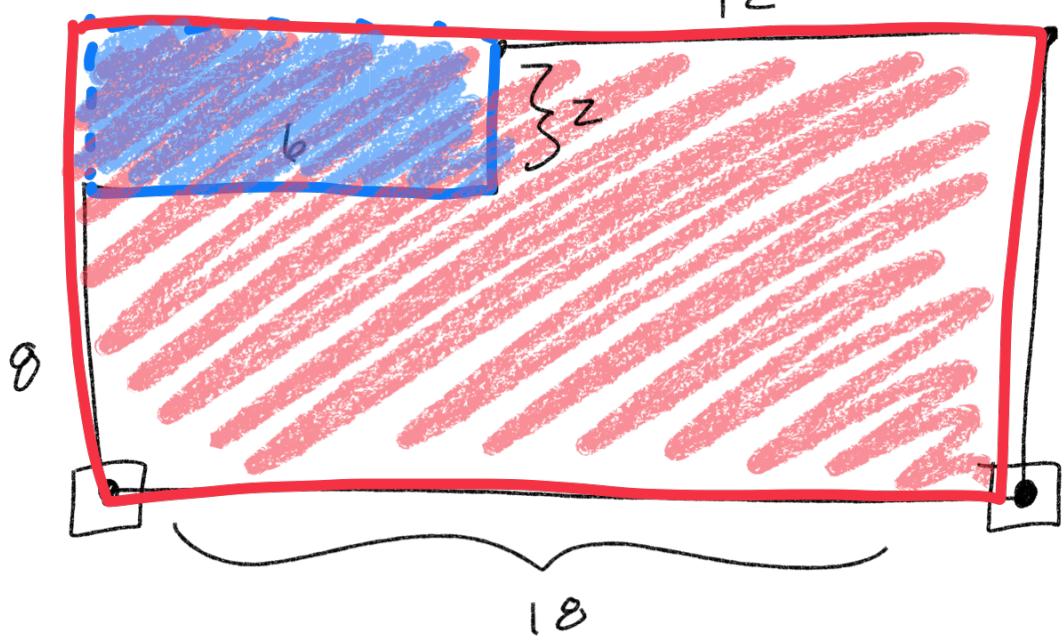
Area of whole

18 * 10 = 180 units²

minus missing
10

2 * 6 = 12 units²

180 - 12 =

168 units²

End of Chapter 1

— Test 1 Stops Here—

Beginning Chapter 2

Conditional Statements   "If... then"

If you call your mom "chunky," **then** you will
          hypothesis
die   a   painful death.   conclusion

Good definition — must be true forwards and
               backwards.

Converse — switch the order of the hypothesis
       and conclusion.

IF you die a painful death, then you called
       your mom "chunky".

                    Counterexample : This class.

        hypothesis
If you watch a Marvel movie, then you should
stay for the end credits. conclusion

Converse: **If** you stay for the end credits, **then**
       you are watching a Marvel movie.
                    (false)

[If] you are in the presence of Nate, [then] you are in the presence of the smartest person alive.

hypothesis

conclusion

Converse:

If you are in the presence of the smartest person alive, then you are in the presence of Nate.

True!

Biconditional Statement → a good definition

Connect the two statements — in whatever order — with "if and only if". No "if" to start, no "then" at all.

No If

You are in the presence of the smartest person alive [if, and only if,] you are in the presence of Nate.

No then

Identify hypothesis and conclusion. Write converse.
If the converse is true, then write the
biconditional statement   (if, and only if)

1.) If you are eating an orange, then you
are eating something disgusting.   *hypothesis* *conclusion.*

Converse   If you are eating something
disgusting, then you are eating an orange.
hypothesis   (false)

2.) If it is July 4th, then it is Independence
Day.   conclusion

Converse   If it is Independence Day, then
it is July 4th   true!

Biconditional
It is Independence Day if, and only if, it is
July 4th.

Law of Syllogism (Transitive Property)

$A \rightarrow \cancel{B}$ $\cancel{B} \rightarrow C$ $A \rightarrow C$
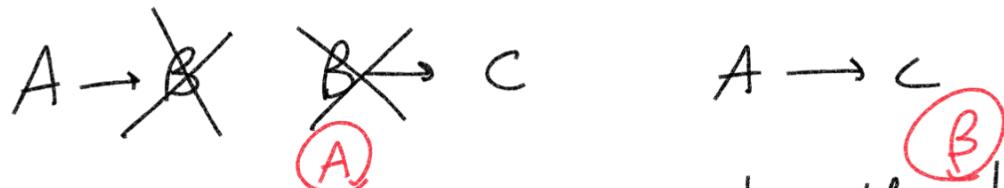
If you make fun of Nate, ~~then he will be~~
(A)   (B)
~~sad.~~
(B)   (C)
~~If Nate is sad,~~ then he will eat eight

dozen donuts.

If you make fun of Nate, then he will eat
eight dozen donuts.

— If you eat shrimp, then you eat the "vein".

If you eat the "vein", then you are eating poop.

Law of Syllogism

If you eat shrimp, then you are eating poop.

Law of Detachment

If you are a math teacher, —hypothesis

then you are a sad... sad... oh so sad and

lonely person. — conclusion

If you are given the hypothesis, then you
__can__ return the conclusion.

If you are given the conclusion, then you
__cannot__ return the hypothesis.

1.) Maxwell is a ~~teacher~~

Maxwell is a sad, sad... oh so sad
and lonely person.

2.) Tyler is a sad, sad... oh so sad and
lonely person   No conclusion

If you have a swim meet, then you should pee in the pool.

1.) Asa peed in the pool

No conclusion

2.) Jeremy has a swim meet.

Jeremy should pee in the pool.