M-G   Geometry   Week 5   10/9

Distance and Midpoint

$(-2, 6)$ and $(3, -6)$

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

Midpoint: $\left(\dfrac{x_2 + x_1}{2}, \dfrac{y_2 + y_1}{2} \right)$
(Averages)

$d = \sqrt{(3 - (-2))^2 + (-6 - 6)^2}$

$\sqrt{(3 + 2)^2 + (-6 - 6)^2}$

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

$\sqrt{25 + 144} = \sqrt{169} = \boxed{13}$

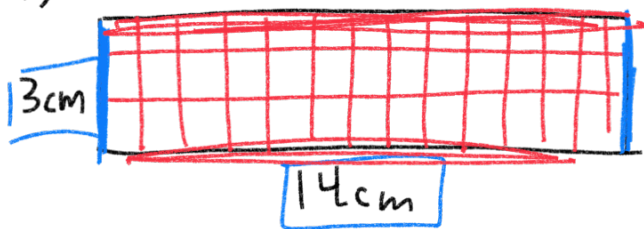$\left(\dfrac{-2 + 3}{2}, \dfrac{6 + (-6)}{2} \right)$

$\left(\dfrac{1}{2}, \dfrac{0}{2} \right)$

$\boxed{\left(\dfrac{1}{2}, 0 \right)}$

Look for perfect squares
1, 4, 9, 16, 25, 36, 49, 64, 81, 100. . . .

$\sqrt{80}$
$\sqrt{4} \quad \sqrt{20}$
$\sqrt{4} \quad \sqrt{5}$

$\sqrt{80}$
$\sqrt{16} \quad \sqrt{5} = \boxed{4\sqrt{5}}$

$\sqrt{80} = \sqrt{4} \cdot \sqrt{4} \cdot \sqrt{5}$
$2 \cdot 2 \cdot \sqrt{5} = 4\sqrt{5}$

1.)

3cm

14cm

3cm 14cm 3cm 14cm

Find

Area: $H * L$

$(3cm)(14cm) = \boxed{42cm^2}$

Perimeter: $L + L + H + H$

$2L + 2H = 2(3\,cm) + 2(14\,cm)$

$6\,cm + 28 = \boxed{34\,cm}$

2.) Radius

6 in
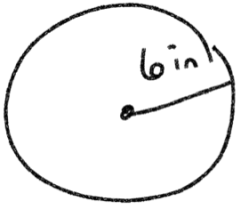
Area: $A = \pi r^2 = \pi(6\,in)^2$

$\boxed{36\pi\,in^2}$

Circumference:

$C = 2\pi r$

$2\pi(6\,in)$

$\boxed{12\pi\,in}$
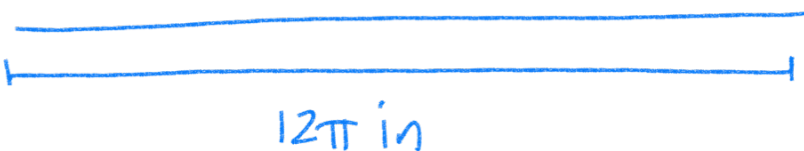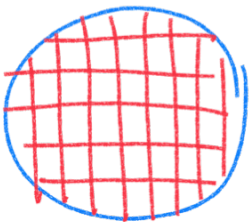
3.) Diameter

22 in

$d = 2r$

$\dfrac{d}{2} = r$

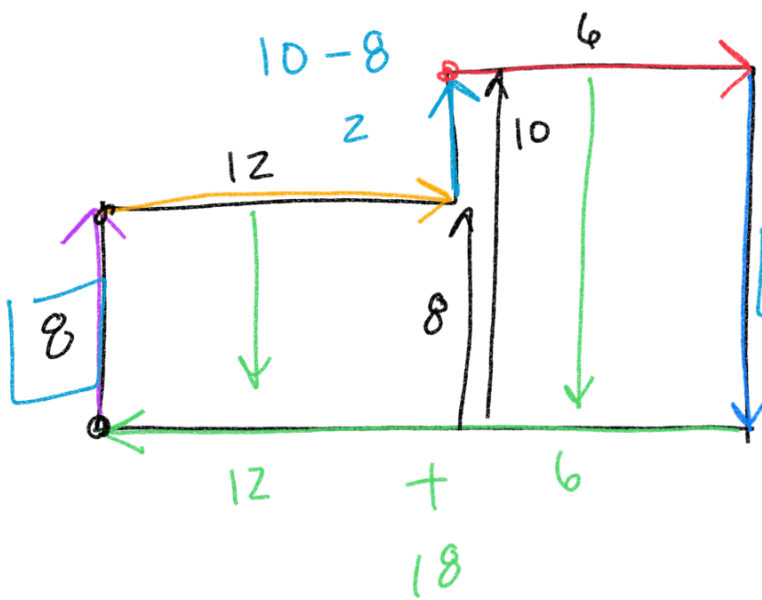Area: $A = \pi\left(\dfrac{d}{2}\right)^2 = \pi\left(\dfrac{22\,in}{2}\right)^2$

$\pi(11\,in)^2$

$\boxed{121\pi\,in^2}$

Circumference:

$C = \pi d$

$= \pi(22\,in)$

$\boxed{22\pi\,in}$

12π in

12π in

10-8

2

12

10

6

Perimeter:

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

$\boxed{56 \text{ units}}$

8

8

12   +   6

18

10

Area:

6

2

12
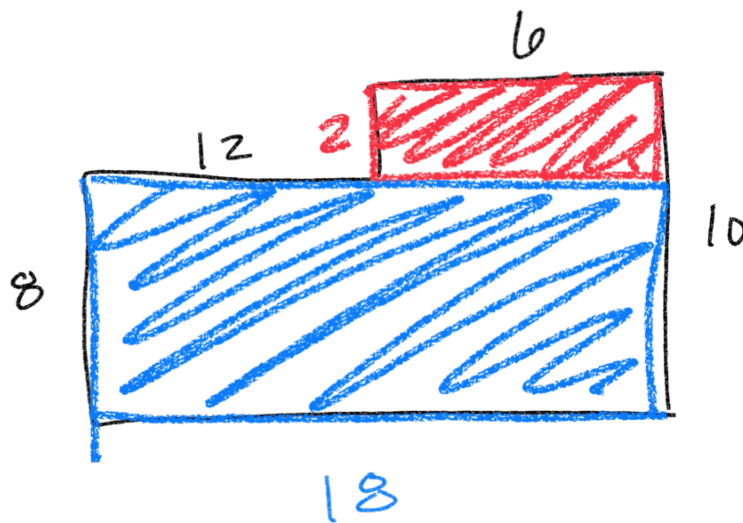
Red: $(2)(6) = 12 \text{ units}^2$

Blue: $(18)(8) = 144 \text{ units}^2$

8

10

+

$\boxed{156 \text{ units}^2}$

18

6

12
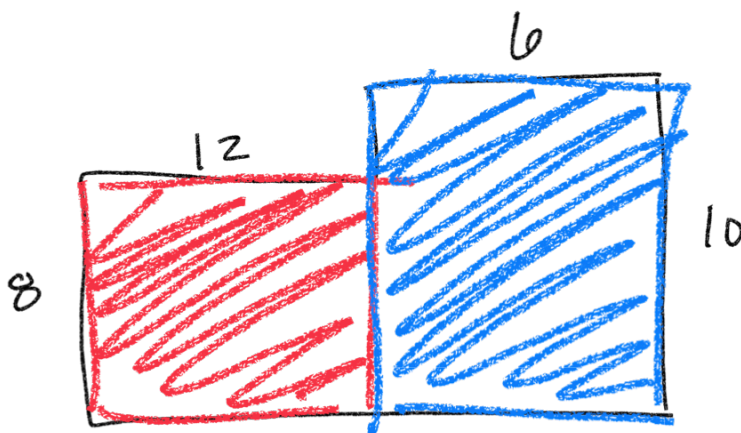
Red: $(12 * 8) = 96 \text{ units}^2$

Blue: $(6 * 10) = 60 \text{ units}^2$

+

8

10

$\boxed{156 \text{ units}^2}$

Figure 1

6

2

8

10

12 + 6

18

8
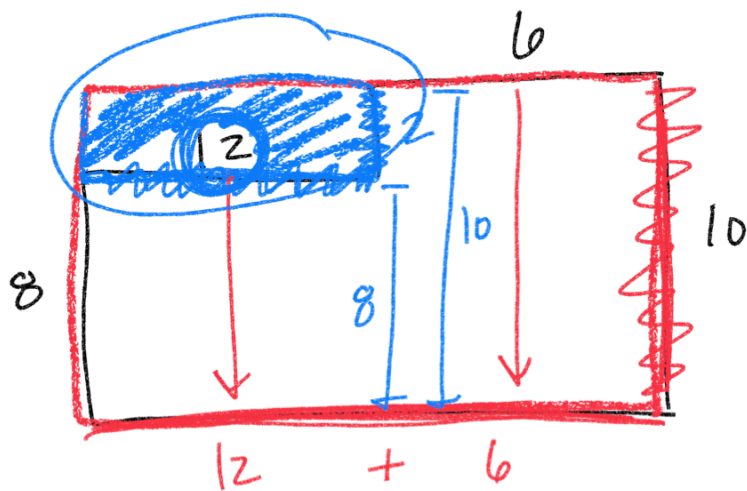
whole — missing

↓

$(18)(10) - (12)(2)$

$180 \text{ units}^2 - 24 \text{ units}^2$

$\boxed{156 \text{ units}^2}$

Figure 2

8

6

5

5

8

5

12

12

12-5
7

$22 - (8 + 6)$

$22 - 14 = 8$

22
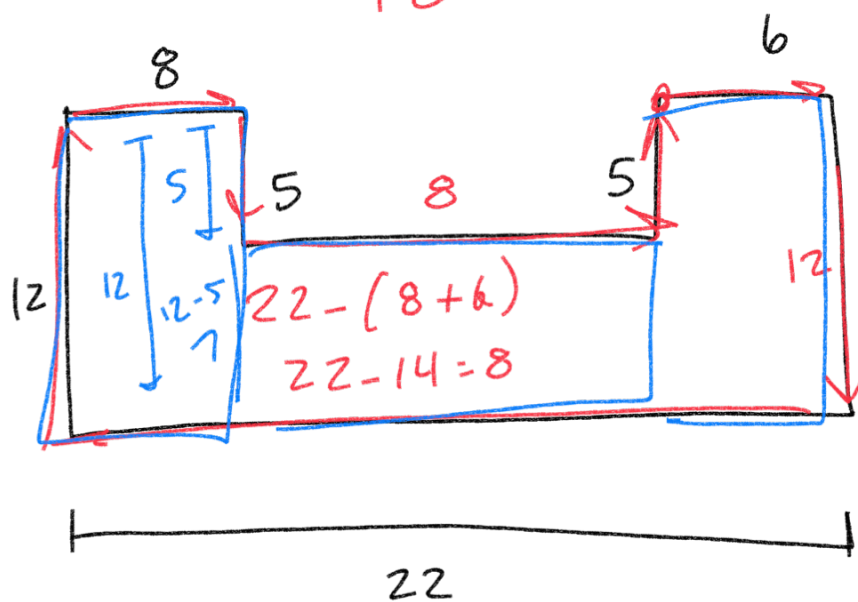
Not drawn to scale

Perimeter:

$6 + 12 + 22 + 12 + 8 + 5 + 8 + 5$

$\boxed{78 \text{ units}}$

Area:

$(8 * 12) + (8 * 7) + (6 * 12)$

$96 + 56 + 72$

$\boxed{224 \text{ units}^2}$

Find a pattern for the following sequences.

1.) 6, 10, 14, 18, 22…   *+4*

+4 +4 +4 +4

2.) 5, 8, 12, 17, 23…

3.) 60, 40, 30, 25, 22.5…
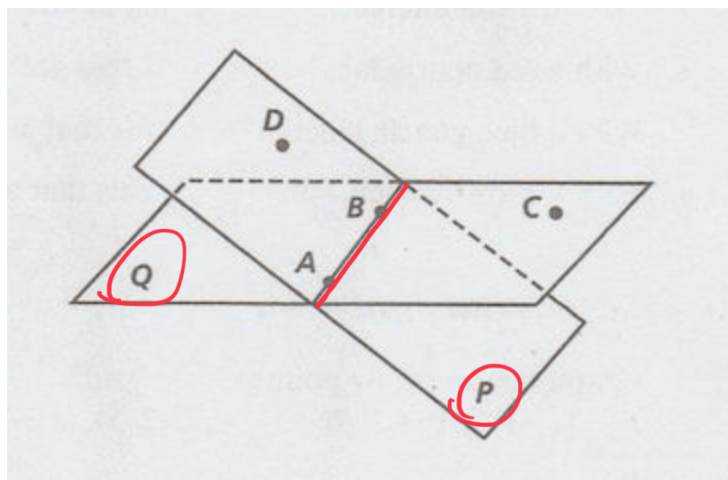
4.) -2, 6, -18, 54, -162...   ** - 3*

*-3 *-3

Use the illustration to answer the following.

1.) What is the intersection of planes P and Q?

$\overline{AB}$

2.) List two pairs of collinear points.

3.) What is the minimum requirement for a plane? Include one from the illustration.

→ 3 noncolllinear points

or

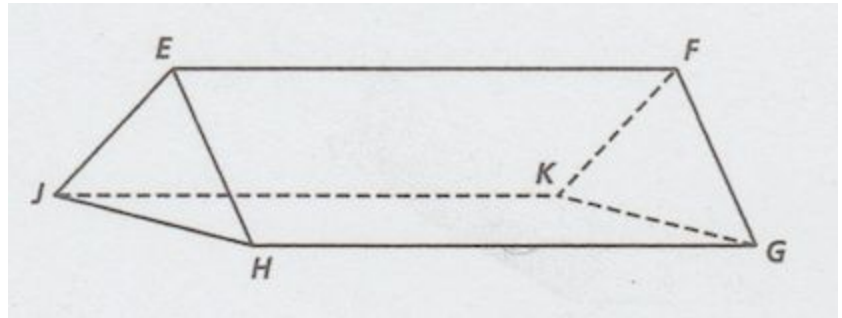→ 1 line and 1 noncolllinear point.

Plane Q ABC   Plane P : ABD

Use the illustration to answer the following.

1.) Name all of the segments parallel to EH.

$\overline{FG}$

2.) Name all segments skew to HG.

Include proper arrow format for each of the following.

1.) Draw a line segment featuring points A and B.

A ⚬————⚬ B

2.) Draw line CD.

C ←—•———•——→ D

3.) Draw the ray XY.

⚬————⚬——→
X   Y

If AX = 57 find the value of each of the following.

1.) AQ

$3x + 7 + x + 2 = 57$
$4x + 9 = 57$
$-9 \quad -9$

3x + 7

x + 2

A   Q   X

2.) x

$\dfrac{4x}{4} = \dfrac{48}{4}$ $X = 12$
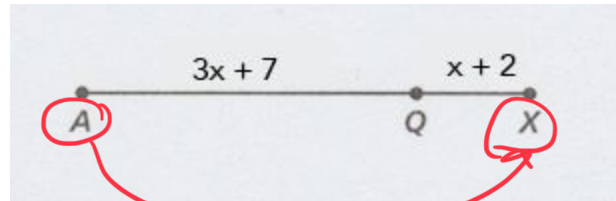
Find the measure of each of the following angles.

1.) ∠DBE

27

2.) ∠DBF

D   E   F

3.) ∠DBC

63   37

A   B   C

$90 - 63 = 27$
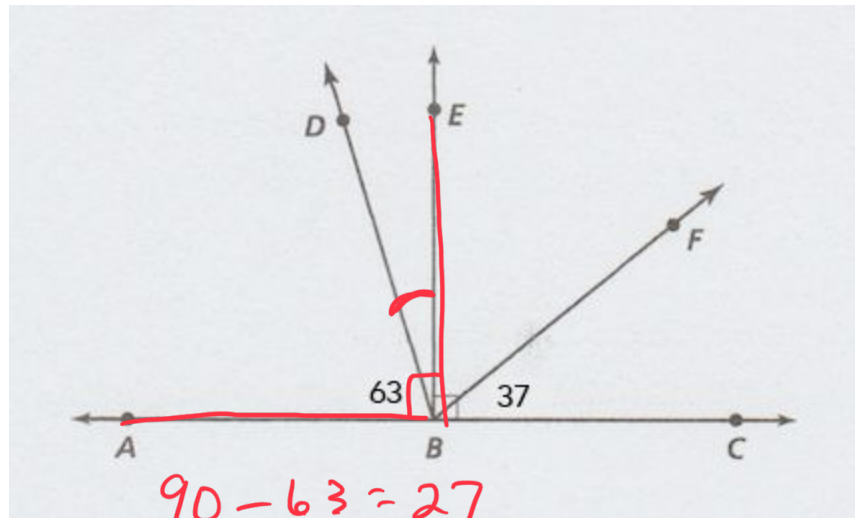
Find the distance between the points.

1.) (2, 4) and (-6, 7)

$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
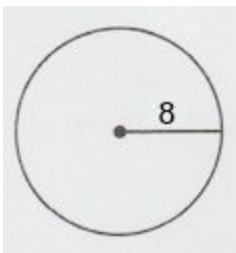
2.) (-1, -5) and (4, 7)

3.) (-7, 0) and (-3, 2)

Find the midpoint of each segment.

1.) A (6, 7), B (-4, 1)

$$\left(\frac{X_1 + X_2}{2}, \frac{y_1 + y_2}{2} \right)$$

2.) C (5, -3), D (-9, 2)

Find the circumference of the circle in terms of π.

8

$$C = d\pi$$

$$C = 2\pi r$$
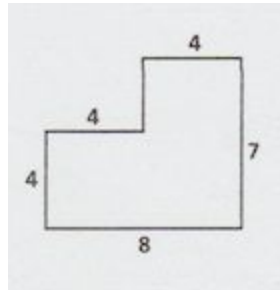
Find the perimeter and area of a rectangle when:

b = 8 cm, h = 6 cm

$$A = bh \qquad P = 2b + 2h$$

Find the perimeter and area for the following figure.

Find the area of the circle in terms of π.

$$A = \pi\left(\frac{d}{2}\right)^2$$