Unit 1

Points, Lines, & Planes

Station A

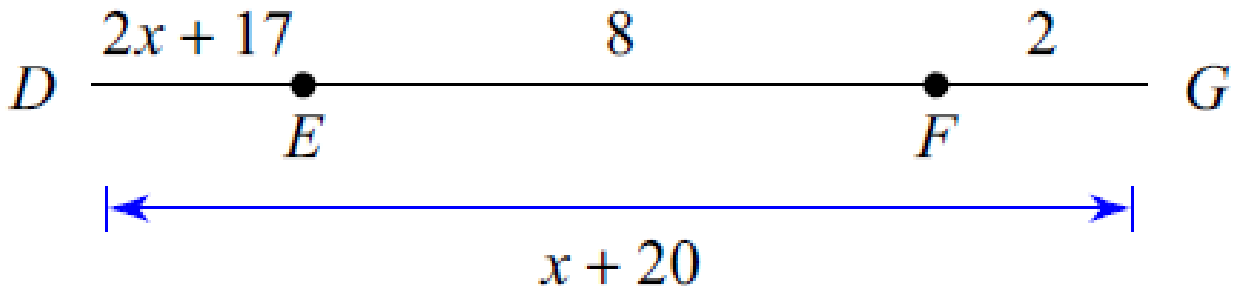
1

a) What are the 3 building blocks of geometry?

b) Sketch the following: Line m intersecting plane K at point J. Line segment RB lies in plane K and is perpendicular to line m.

2

Find DG



3

Donald Duck says the midpoint of (4, 2) and (10, –3) is (7, 0). Is he right?

4

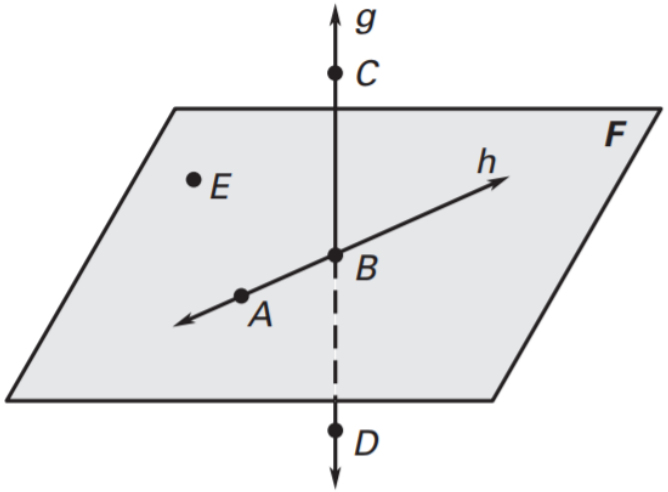
If a circle has a diameter with endpoints of (7, 3) and (–2, 5), what are the coordinates of the center of the circle?

5

What is the length of ST, S(4, -8) and T(6,0)?

Round to the nearest tenth.

6



Select all that apply

a) line g is perpendicular to line h
b) C, E and B are coplanar
c) D, A, and B are coplanar on F
d) C, B, and D are collinear
e) A is a vertex

7

What is the distance between the points (-2,-8) and (-3, -12)?

Round to the nearest tenth.

8

What is the perimeter of triangle ABC if A(3, 0), B(-5, -6) and C(-1, 10)?

Round to the nearest tenth.

Station B

1

a) Point P partitions line segment DF into the ratio 4:5, what is k?

b) Points A,R,K are collinear on segment AK. The ratio of AR:AK is $\frac{2}{7}$, what is k?

c) Point K is located on AF. The ratio of AK:KF is 7:8. What is k?

d) A, P, B are collinear. Describe the difference between the ratio AP:PB and the ratio AP:AB?

2

Points G, K and J are collinear on $\overline{GJ}$, and GK:GJ = $\frac{3}{5}$. G is located at (-4,5), K is located at (x,y), and J is located (6,0). What are the values of x and y?

3

Points A, B and C are collinear on $\overline{AC}$, and AB:BC = $\frac{3}{4}$. A is located at (x,y), B is located at (4,1) and C is located at (12,5). What are the values of x and y?

4

Point A partitions $\overline{DF}$ in a ratio of 2:5. D is at (4,1) and F is at (10, -12), what is the coordinate of A?

Station C

1

Write the equation of each line in slope-intercept form (y = mx + b) that passes through the given point and has the given slope.

1) **Passes through (2,3) and slope is 5.**
2) **Passes through (6, –5) and slope is –1/3**

2

Identify if the lines in example 1 and 2 as parallel, perpendicular o neither.

1) **Line m: $y = \frac{1}{3}x - 2$ & Line k: $6y = 2x + 12$**
2) **Line q: $4x - 2y = 6$ & Line w: $2x + 4y = 6$**

3

Write the equation of a line parallel and a line perpendicular to the line $5y = -2x - 20$ and passes through the point $(-10, 8)$.

4

Write the equation of a line that passes through (4,0) and is perpendicular to $2x + y = 1$.

5

Write the equation of a line that passes through (–10,8) and is parallel to $5y = -2x + 12$.

6

Tip 1: *Think about what slope a perpendicular bisector would have to the line segment it intersects.*

Tip 2: *Think about where a bisector crosses the intersected line segment.*

Write the equation for the perpendicular bisector of line segment AF that connects A(2, 5) and B(8, 3).

7

Match each of the following with the equations below. Write the letter of the appropriate equation in the column beside each item.

A. $y = 0$ B. $y = -\frac{1}{3}x + 1$ C. $x = 3y + 21$ D. $x - 2y = -2$

	A line parallel to $y = \frac{1}{3}x + 2$
	A line perpendicular to $x = 3$
	A line perpendicular to $9x - 3y = 18$
	A line parallel to $-4x + 8y = 9$

8

1) Explain the features of linear equations that make lines parallel, perpendicular, or neither.
2) Explain the different between a line with the equation $x = 5$ and a line with the equation $y = 5$.