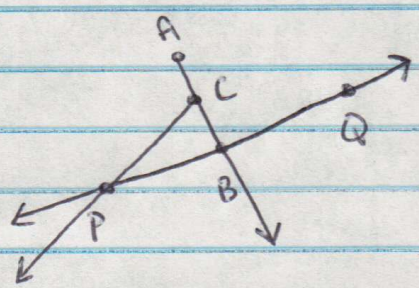
1. Straight & infinitely long.

2. point, straight, forever

3 point, point

4.-9



Answers may look different.

10. points on the same line

11. points / lines on the same plane

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

AB must equal CD in length.
Using distance formula to check.

$x_1\ y_1$ $x_2\ y_2$ $x_1\ y_1$ $x_2\ y_2$
A(-2,-1) B(2,2) C(0,2) D(4,-5)

$d = \sqrt{(2--2)^2 + (2--1)^2}$
$= \sqrt{4^2+3^2}$
$= \sqrt{16+9}$
$= \sqrt{25}$
$= 5$

$CD = \sqrt{(4-0)^2 + (-5-2)^2}$
$= \sqrt{4^2 + (-7)^2}$
$= \sqrt{16+49}$
$= \sqrt{65}$

$5 \neq \sqrt{65}$ AB is NOT congruent to CD

13. A(-2,4) B(0,-1) C(0,2) D(1,-3)
$x_1\ y_1$ $x_2\ y_2$ $x_1\ y_1$ $x_2\ y_2$

$AB = \sqrt{(0--2)^2 + (-1-4)^2}$
$= \sqrt{2^2 + (-5)^2}$
$= \sqrt{4+25}$
$= \sqrt{29}$

$CD = \sqrt{(1-0)^2 + (-3-2)^2}$
$= \sqrt{1^2 + (-5)^2}$
$= \sqrt{1+25}$
$= \sqrt{26}$

$AB \neq CD$
Not congruent

14. $P(-3,0)$ $Q(3,3)$
x_1, y_1 x_2, y_2

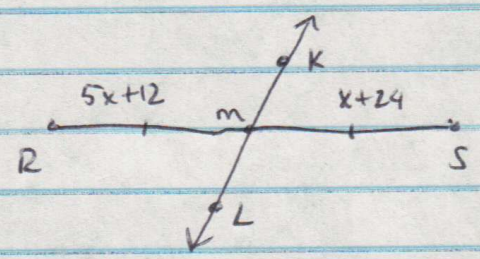
$PQ = \sqrt{(3--3)^2 + (3-0)^2}$

$= \sqrt{6^2+3^2}$

$= \sqrt{36+9}$

$= \sqrt{45}$

15-18



18. $5x+12 = x+24$

$-x \quad -x$

$4x+12 = 24$

$-12 \quad -12$

$\frac{4x}{4} = \frac{12}{4}$

$x = 3$

19. $A(3,9)$ $B(-1,0)$
x_1, y_1 x_2, y_2

$\left(\frac{3+-1}{2}, \frac{9+0}{2}\right)$

$\left(\frac{2}{2}, \frac{9}{2}\right) = (1, 9/2)$

20. $F(0,-5)$ $G(-4,5)$

$\left(\frac{0+-4}{2}, \frac{-5+5}{2}\right)$

$\left(\frac{-4}{2}, \frac{0}{2}\right) = (-2, 0)$

25. $A = \frac{1}{2}bh$

$b = 6 \quad h = 3x+1$

$A = 21$

$21 = \frac{1}{2}(6)(3x+1)$

$\frac{21}{3} = \frac{3(3x+1)}{3}$

$7 = 3x+1$

$-1 \quad -1$

$\frac{6}{3} = \frac{3x}{3}$ $\quad x = 2$

26. $l = 2x-5 \quad w = 7 \quad P = 44$

$P = 2l + 2w$

$44 = 2(2x-5) + 2(7)$

$44 = 2(2x-5) + 14$

$-14 \quad -14$

$\frac{30}{2} = \frac{2(2x-5)}{2}$

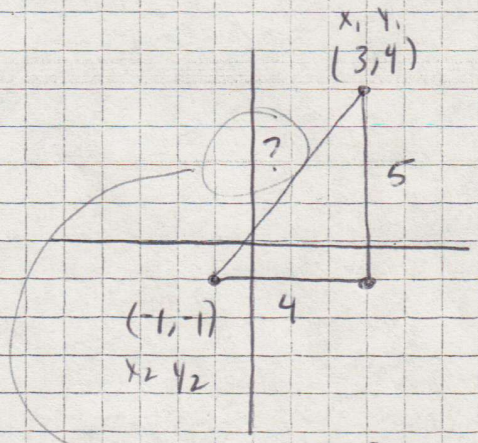
$15 = 2x-5$

$+5 \quad +5$

$\frac{20}{2} = \frac{2x}{2}$

$(x = 10)$

21.



$P = 4 + 5 + \sqrt{41} = 9 + \sqrt{41} \approx 15.4$ units

↑ Distance Formula

$? = \sqrt{(-1-3)^2 + (-1-4)^2}$

$= \sqrt{(-4)^2 + (-5)^2}$

$= \sqrt{16+25}$

$= \sqrt{41}$

22. Area of triangle

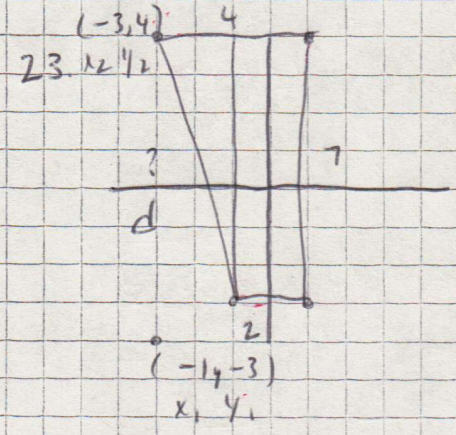
$A = \frac{1}{2} b h$

$b = 4$

$h = 5$

$A = \frac{1}{2}(4)(5) = 10$ square units

23.



$d = \sqrt{(-3--1)^2 + (4--3)^2}$

$= \sqrt{(-2)^2 + (7)^2}$

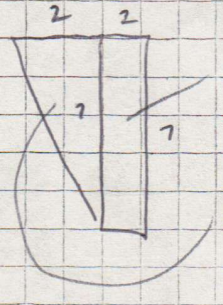
$= \sqrt{4+49}$

$= \sqrt{53}$

$P = 2 + 7 + 4 + \sqrt{53}$

≈ 20.28 units

24.



$A = 2 \cdot 7 = 14$

$A = \frac{1}{2}(2)(7) = 7$

$14 + 7 = 21$ square units