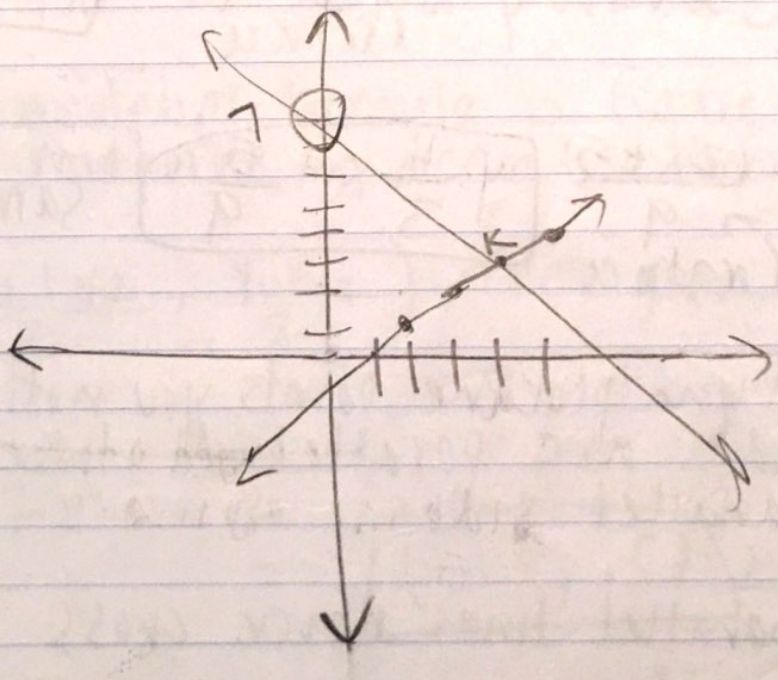
Control Unit 6

1. [A] - 1st Plot the line segment $\overline{AB}$ & draw in K

$A = (3,2)$

$B = (5,4)$

- Next, you can cross off B and D because if the other line is perpendicular to this line, it must have a slope with the opposite sign - points the other direction.
- Next, draw in the line, being sure it crosses at point K and it crosses at +7



2. [C] - Remember, the diameter of a circle is twice as long as the radius.

$1600 = 4/3\pi r^3$ - solve for r

$\frac{1600}{4.18} = \frac{4.18r^3}{4.18}$ $\quad \sqrt[3]{382.7} = \sqrt[3]{r^3}$

$7.11 = r$, so $\boxed{d = 14}$

3. [D] - scalene triangles have 3 unequal sides (equilateral have all equal sides, isosceles have 2 equal sides and right has a 90° angle).

4. [A] - key word is parallel, which tells you they will have the <u>same</u> slope.

Before you can compare slopes, you must convert from standard form to slope-intercept form.

$\frac{6y}{6} = \frac{8x-11}{6}$ $\quad y = \frac{8}{6}x - \frac{11}{6}$ $\quad \boxed{y = \frac{4}{3}x - \frac{11}{6}}$

reduce

$\frac{9y}{9} = \frac{12x+5}{9}$ $\quad \boxed{y = \frac{4}{3}x + \frac{5}{9}}$ same slopes!

reduce

5. [C] - if you plot the points you notice that only 2 sides are parallel. All other shapes have 4 parallel sides.

6. [B] - parallel lines never cross.

7. Graph points to see shape + side lengths + then do $a = bh$ $\quad 8(4) = \boxed{32}$

8. $V = \frac{1}{3}Bh$ $\quad B = \pi r^2$

$262 = \frac{1}{3}\pi r^2(10)$ $\quad \frac{262}{10.47} = \frac{10.47r^2}{10.47}$

$\sqrt{25.02} = \sqrt{r^2}$

$5'' = r$

9. If the point lies on the circle, then the distance from the center to that point will be equal to 5. Not provable ☺

10. Use midpoint formula to figure out the exact midpoint between the two houses:

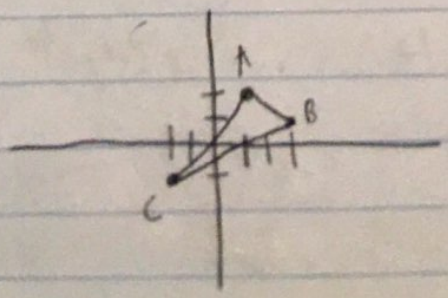
$\left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$ Points given: $\overset{x_1}{(-7}, \overset{y_1}{6)}$ $\overset{x_2}{(4}, \overset{y_2}{-5)}$

$\frac{-7+4}{2}, \frac{6+-5}{2}$ $\quad \frac{-3}{2}, \frac{1}{2}$

$(-1.5, .5)$

11. Use the distance formula to find side lengths.

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



- sidelength $\overline{AB}$ will be smallest

(A) (B) (C)

(1, 2) (3, 1) (−2, −1) – name each point

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

$\overline{AB} = \sqrt{(3-1)^2 + (1-2)^2}$ $\sqrt{5} = 2.24$

$4 + 1$

$\overline{AC} = \sqrt{(-2-1)^2 + (-1+2)^2}$ $\sqrt{18} = 4.24$

$9 + 9$

$\overline{BC} = \sqrt{(-2+3)^2 + (-1-1)^2}$ $\sqrt{25} = 5$

$25 + 0$

Now add them all up $2.24 + 4.24 + 5 = 11.48$

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