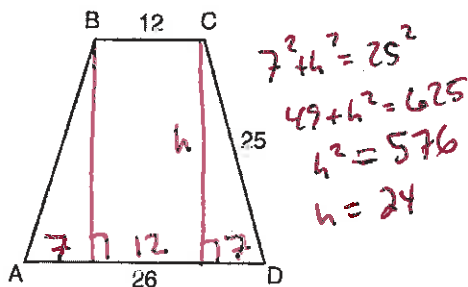


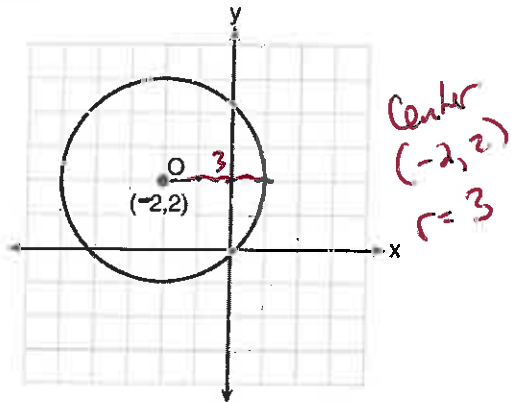
1. In the diagram below of isosceles trapezoid $ABCD$, $AB = CD = 25$, $AD = 26$, and $BC = 12$.



What is the length of an altitude of the trapezoid?

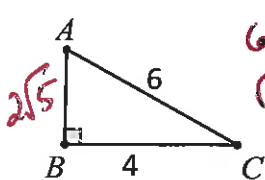
- 1) 7
- 2) 14
- 3) 19
- 4) 24

2. What is an equation of circle O shown in the graph below?



- 1) $(x+2)^2 + (y-2)^2 = 9$
 - 2) $(x+2)^2 + (y-2)^2 = 3$
 - 3) $(x-2)^2 + (y+2)^2 = 9$
 - 4) $(x-2)^2 + (y+2)^2 = 3$
- Handwritten note: $(x-h)^2 + (y-k)^2 = r^2$

3. What is the $\cos(A)$?

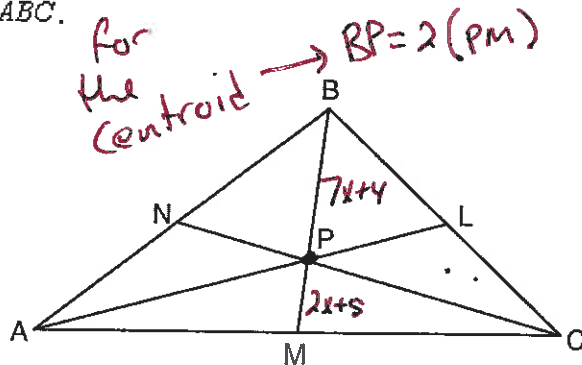


Handwritten notes: $6^2 - 4^2 = 20$, $\sqrt{20} = 2\sqrt{5}$

Handwritten formula: $\cos(A) = \frac{\text{adj}}{\text{hyp}} = \frac{2\sqrt{5}}{6}$

- 1) $\frac{2}{3}$
- 2) $\frac{3}{2}$
- 3) $\frac{\sqrt{5}}{3}$
- 4) $\frac{\sqrt{5}}{2}$

4. In the diagram below, point P is the centroid of $\triangle ABC$.



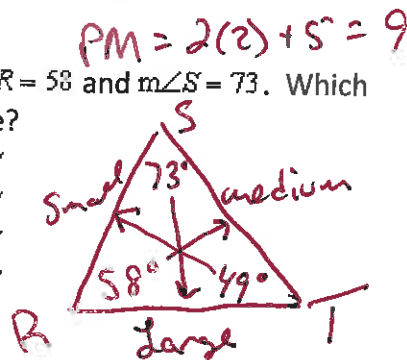
If $PM = 2x + 5$ and $BP = 7x + 4$, what is the length of \overline{PM} ?

- 1) 9
- 2) 2
- 3) 18
- 4) 27

Handwritten work: $2(2x+5) = 7x+4$, $4x+10 = 7x+4$, $6 = 3x$, $x = 2$

5. In $\triangle RST$, $m\angle R = 58^\circ$ and $m\angle S = 73^\circ$. Which inequality is true?

- 1) $RT < TS < RS$
- 2) $RS < RT < TS$
- 3) $RT < RS < TS$
- 4) $RS < TS < RT$



6. The number of degrees in the sum of the interior angles of a pentagon is

- 1) 72
- 2) 360
- 3) 540
- 4) 720

Handwritten work: $180(5-2) = 180(3) = 540^\circ$

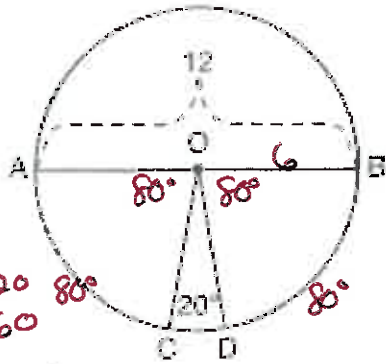
7. What is the equation of a line passing through $(2, -1)$ and parallel to the line represented by the equation $y = 2x + 1$?

- 1) $y = -\frac{1}{2}x$
- 2) $y = -\frac{1}{2}x + 1$
- 3) $y = 2x - 5$
- 4) $y = 2x - 1$

Handwritten work: Slope = $\frac{2}{1}$, $2(2) - 5 = -1$, $2(x) - 1 = 3$

8.

In the diagram below of circle O , diameter \overline{AB} and radii \overline{OC} and \overline{OD} are drawn. The length of \overline{AB} is 12 and the measure of $\angle COD$ is 20 degrees.



If $\overline{AC} \cong \overline{BD}$, find the area of sector BOD in terms of π .

$$\begin{aligned} \text{Area Sector} &= \frac{\text{Angle}}{360^\circ} \cdot (\pi r^2) \\ &= \frac{80^\circ}{360^\circ} (\pi \cdot 6^2) \\ &= \frac{8}{36} \cdot 36\pi \\ &= 8\pi \text{ Sq. units} \end{aligned}$$

Area of full circle.

$180 - 20 = 160$
 $\frac{160}{2} = 80^\circ$

9.

The line $y = 2x - 4$ is dilated by a scale factor of $\frac{3}{2}$ and centered at the origin. Which equation represents the image of the line after the dilation?

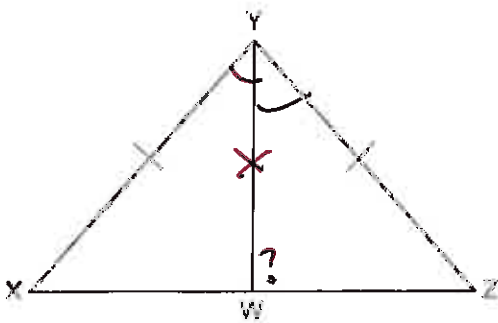
- ~~(1) $y = 2x - 4$~~
 - (2) $y = 2x - 6$
 - ~~(3) $y = 3x - 4$~~
 - ~~(4) $y = 3x - 6$~~
- reject for wrong slope.

Dilation preserves // -ism. So must have = slopes.
Dilation does not preserve distance so y-int must change.

10.

Given $\triangle XYZ$, $\overline{XY} \cong \overline{ZY}$, and \overline{YW} bisects $\angle XYZ$

Prove that $\angle WYZ$ is a right angle.



- | S | R. |
|---|---|
| (1) | (1) Golden S |
| (2) $\angle XYW \cong \angle ZYW$ | (2) \angle bisector $\therefore \angle$ into 2 \cong \angle 's. |
| (3) $\overline{YW} \cong \overline{YW}$ | (3) Reflexive. |
| (4) $\triangle XYW \cong \triangle ZYW$ | (4) SAS. |
| (5) $\angle XWY \cong \angle ZWY$ | (5) CPCTC. |
| (6) $\angle XWY$ supp. $\angle ZWY$ | (6) Adj. \angle 's formed by 2 int. lines are supp. |
| (7) $\angle XWY$ and $\angle ZWY$ are Rt. | (7) 2 \angle 's supp + \cong are both 90° . |

Awsome!