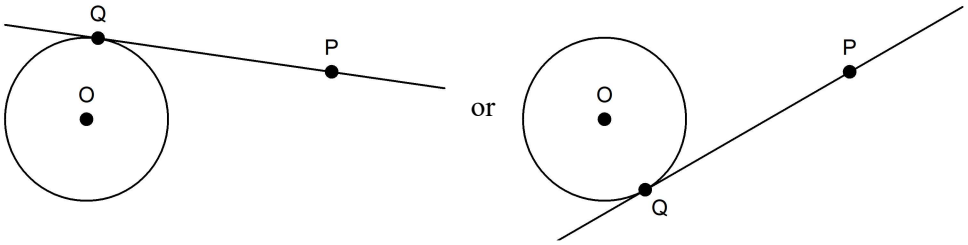
Math 9 Accelerated - Exam Review: Chapter 8
Answer Section

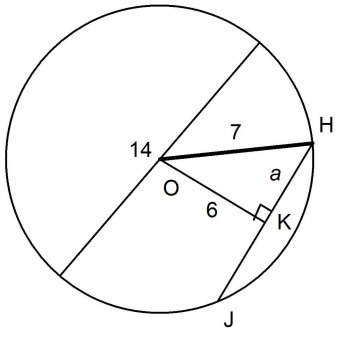
MULTIPLE CHOICE

1. C
2. B
3. C
4. D
5. C
6. B

SHORT ANSWER

7. 

8. $v° = 58°$, $w° = 30°$
9. $d = 24.1$, $e° = 28°$
10. $c° = 34°$, $d° = 112°$



11. $a^2 = 7^2 - 6^2$

    $a = \sqrt{49 - 36}$

    $a = \sqrt{13}$

    $a = 3.6$
12. $m = 10.6$
13. Inscribed angle

14. Inscribed angle: $\angle PRQ$
Central angle: $\angle POQ$
15. $y° = 52°$, $z° = 104°$
16. $y° = 38°$, $z° = 52°$

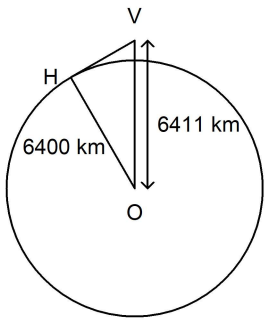
PROBLEM

17.

$OV = 11\text{ km} + 6400\text{ km}$

$= 6411\text{ km}$

$OH = 6400\text{ km}$



Use the Pythagorean Theorem in $\triangle OHV$ to solve for HV.

$HV^2 = OV^2 - OH^2$

$HV^2 = 6411^2 - 6400^2$

$HV^2 = 140\,921$

$HV = \sqrt{140\,921}$

$HV \doteq 375.3944\ldots$

The vulture was about 375 kilometres from the horizon.

18. The distance from the centre of the mirror to the hook is: OT
So, the distance from the top of the mirror to the hook is: OT – 27 cm
Solve for OT.

$OT^2 = 27^2 + 23^2$

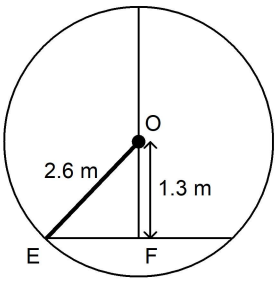
$OT^2 = 1258$

$OT = \sqrt{1258}$

$OT \doteq 35.4682\ldots$

So,
OT – 27 cm
= 35.4682... cm – 27 cm
= 8.4682... cm
So, the hook is about 8.5 cm above the mirror.

19.



Draw a radius from the centre of the pipe, O, to an edge of the path, E.
Label the midpoint of the path F.
OE is a radius, so: OE = 2.6 m
OF = 3.9 m – 2.6 m

= 1.3 m

Use the Pythagorean Theorem in $\triangle$OEF to solve for EF.

$EF^2 + 1.3^2 = 2.6^2$

$EF^2 = 2.6^2 - 1.3^2$

$EF^2 = 5.07$

$EF = \sqrt{5.07}$

$EF = 2.2516\ldots$

The width of the path is twice the length of EF.
$2(2.2516\ldots) = 4.5033\ldots$
So, the width of the path is about 4.5 m.

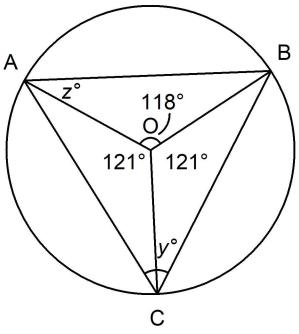
20. The sum of the central angles in a circle is 360°.
$121° + 121° + x° = 360°$

$242° + x° = 360°$

$x° = 360° - 242°$

$x° = 118°$

$\angle ACB$ is an inscribed angle and $\angle AOB$ is a central angle subtended by the same arc.



So, $\angle ACB = \frac{1}{2}\angle AOB$

$y° = \frac{1}{2} \times 118°$

$y° = 59°$

OA and OB are radii, so $\triangle AOB$ is isosceles with $\angle OAB = \angle OBA = z°$.
The sum of the angles in a triangle is 180°, so in $\triangle AOB$:
$z° + z° + 118° = 180°$

$2z° + 118° = 180°$

$2z° = 180° - 118°$

$2z° = 62°$

$z° = \frac{62°}{2}$

$z° = 31°$