

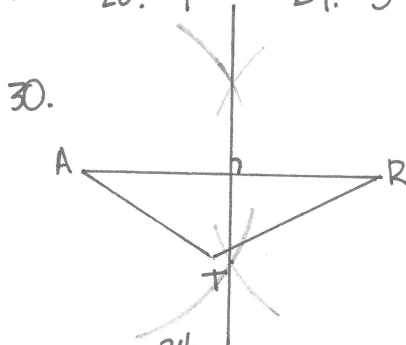
# Geometry - January 2015

## Part 1

- |      |      |       |       |       |       |       |
|------|------|-------|-------|-------|-------|-------|
| 1. 4 | 5. 1 | 9. 2  | 13. 4 | 17. 2 | 21. 3 | 25. 4 |
| 2. 4 | 6. 3 | 10. 2 | 14. 3 | 18. 3 | 22. 2 | 26. 1 |
| 3. 3 | 7. 1 | 11. 2 | 15. 2 | 19. 1 | 23. 3 | 27. 4 |
| 4. 1 | 8. 4 | 12. 1 | 16. 1 | 20. 4 | 24. 3 | 28. 4 |

## Part 2

29. ①  $\overline{BE} \cong \overline{EC}$  ① Given  
 $\overline{AC} \cong \overline{DC}$   
 ②  $\angle BCA \cong \angle ECD$  ② vertical  $\angle$ s  $\cong$   
 ③  $\triangle BCA \cong \triangle ECD$  ③ SAS



31.  $(10-2)(180)$   
 $8(180)$   
 $1440$   
 $\frac{1440}{10} = \boxed{144}$

32.  $\frac{3y}{3} = \frac{x+6}{3}$   $y - y_1 = m(x - x_1)$   
 $y = \frac{1}{3}x + 2$   $y - 4 = \frac{1}{3}(x - 3)$   
 $m = \frac{1}{3}$   $y - 4 = \frac{1}{3}(x + 3)$   
 $// m = \frac{1}{3}$   $OR$   
 $y = \frac{1}{3}x + 5$

33.   
 $6(24) = 8x$   
 $144 = 8x$   
 $\boxed{18 = x}$

34.  $m_{\overline{QR}} = \frac{x-1}{4}$   $m_{\overline{ST}} = \frac{0}{8}$   
 $\perp \overline{ST} = -\frac{3}{8}$   
 $-\frac{3}{8} = \frac{x-1}{4}$   
 $8(x-1) = -3(4)$   
 $8x - 8 = -12$   
 $8x = -4$   
 $\boxed{x = -\frac{1}{2}}$

## Part 3

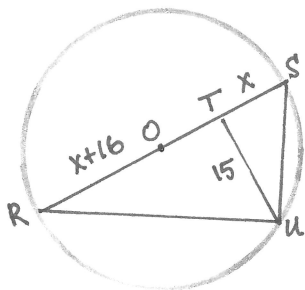
- $T(5, -3)$   $\uparrow$  x-axis  
 35.  $H(2, 3) \rightarrow H'(7, 0) \rightarrow H''(7, 0)$   
 $Y(1, 7) \rightarrow Y'(6, 4) \rightarrow Y''(6, -4)$   
 $P(-2, 7) \rightarrow P'(3, 4) \rightarrow P''(3, -4)$   
 $E(-2, 4) \rightarrow E'(3, 1) \rightarrow E''(3, -1)$

36. skip

37.  $V_{\text{cone}} = \frac{1}{3}Bh$   $V_{\text{cyl.}} = Bh$   
 $= \frac{1}{3}\pi r^2 h$   $= \pi r^2 h$   
 $= \frac{1}{3}\pi(3)^2(4)$   $= \pi(4)^2(6)$   
 $= 12\pi$   $= 96\pi$

$\frac{96\pi}{12\pi} = 8$  full cones

## Part 4



$\frac{x}{15} = \frac{15}{x+16}$

$x(x+16) = 225$

$x^2 + 16x = 225$

$x^2 + 16x - 225 = 0$

$(x+25)(x-9) = 0$

$x = -25$   $x = 9$

$25^2 + 15^2 = (RU)^2$

$625 + 225 = (RU)^2$

$850 = (RU)^2$

$\sqrt{850} = RU$

$\sqrt{25} \sqrt{34} = RU$

$5\sqrt{34} = RU$