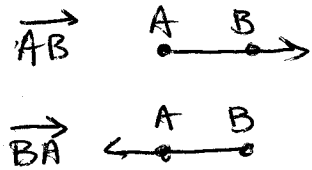
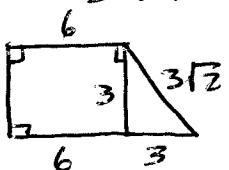
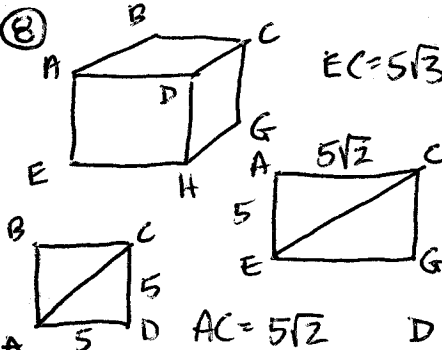
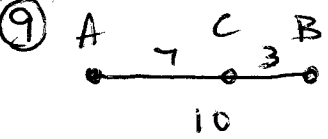
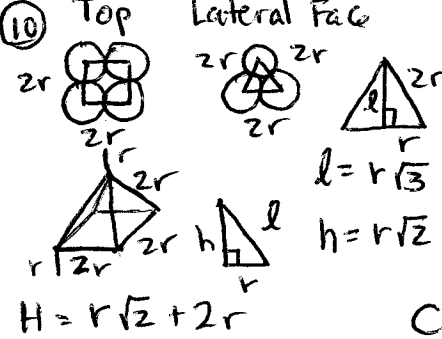


GEOMETRY \* FEBRUARY \* REGIONAL \* INDIVIDUAL \* SOLUTIONS

<p>① vertical <math>\angle</math>'s <math>\cong</math>  <math>30 = 7x + 2</math>  <math>4 = x</math></p> <p style="text-align: right;">D</p>	<p>⑥ if PH, then WT          Contrapositive          if <math>\neg</math>WT, then <math>\neg</math>PH</p> <p style="text-align: right;">B</p>	<p>⑪ <math>\frac{7:72:94}{10:00:00} = \frac{x}{12:00:00}</math>  <math>x = 9.27528</math>  <math>.27528 \times 60 = 16.5168</math>  <math>.968 \times 60 = 31.008</math>          9:16:31am</p> <p style="text-align: right;">B</p>
<p>② </p> <p style="text-align: right;">D</p>	<p>⑦ <math>A = \frac{1}{2}(b_1 + b_2)h</math></p>  <p><math>A = \frac{1}{2}(15) \cdot 3</math></p> <p style="text-align: right;">A</p>	<p>⑫ AD is the shortest distance between lines <math>\overleftrightarrow{AE}</math> &amp; <math>\overleftrightarrow{DF}</math></p> <p>IF = 88 impossible</p> <p style="text-align: right;">E</p>
<p>③ <math>m\widehat{AB} = 30^\circ</math>  <math>\Rightarrow m\angle ACB = 30^\circ</math>          isosceles <math>\triangle ACD</math>  <math>\Rightarrow 2x = 30^\circ</math>  <math>\Rightarrow x = 15</math></p> <p style="text-align: right;">B</p>	<p>⑧ </p> <p style="text-align: right;">D</p>	<p>⑬ <math>6 + 4 \neq 10</math></p> <p style="text-align: right;">D</p>
<p>④ skew lines</p> <p style="text-align: right;">B</p>	<p>⑨ </p> <p style="text-align: right;">A</p>	<p>⑭ <math>a^2 + b^2 = c^2</math>  <math>7 + 24 = 31</math></p> <p style="text-align: right;">B</p>
<p>⑮ <math>\sin(A) = \frac{24}{25}</math></p> <p style="text-align: right;">C</p>	<p>⑩ Top Lateral Face</p>  <p><math>H = r\sqrt{2} + 2r</math></p> <p style="text-align: right;">C</p>	<p>⑮ 6 congruent square pyramids, each w/ vertex = center of cube &amp; base = face of cube</p> <p style="text-align: right;">C</p>

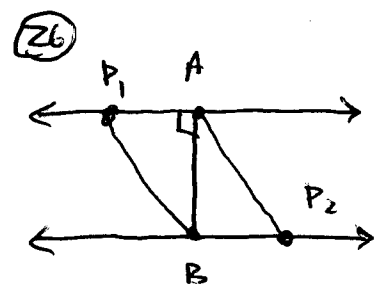
GEOMETRY \* FEBRUARY \* REGIONAL \* INDIVIDUAL \* SOLUTIONS

①⑥  $SA = LA_{cyl} + 2LA_{cone}$   
 $LA_{cyl} = ph = 2\pi(1)(4)$   
 $LA_{cone} = \frac{1}{2}lp = \frac{1}{2}\sqrt{5}(2\pi)$   
 $SA = 8\pi + 2\sqrt{5}\pi$   
 $\approx 39.182$

C

②①  $EF \cdot ED = FG \cdot FH$   
 $2 \cdot 8 = 1(1+x)$   
 $15 = x$

C



D

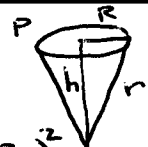
①⑦ quadrilaterals  
 kites      trapezoids  
 rhombuses      parallelograms  
                     rectangles  
                     squares

B

②② Big Small  
 Length  $\lambda \sqrt{\frac{10}{17}}$   
 Area  $17 \lambda \frac{10}{17} = 10$   
 Volume  $13 \times \left(\sqrt{\frac{10}{17}}\right)^2 = \square$

A

②⑦  $V = \frac{1}{3}Bh$   
 $P = \frac{3}{2}\pi r = 2\pi R$   
 $R = \frac{3}{4}$        $B = \pi\left(\frac{3}{4}r\right)^2$   
 $r^2 = h^2 + R^2$        $V = \frac{1}{3}\pi \frac{9}{4}r^2 \frac{r}{4}$   
 $h = \sqrt{r^2 - \left(\frac{3}{4}r\right)^2}$   
 $h = \sqrt{\frac{16}{16}r^2 - \frac{9}{16}r^2} = \frac{5}{4}\sqrt{7}$



C

①⑧  $m\angle A = 59.5$   
 $m\angle B = 60.5$   
 $m\angle C = 60$   
 longest segment is  
 opposite  $\angle B$   
 $\overline{AC}$

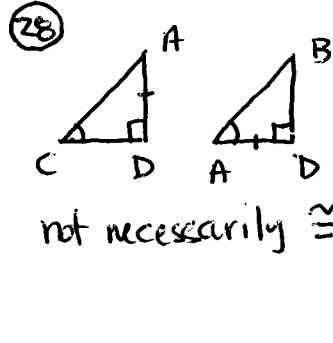
B

②③

# Sides	# diagonals
3	0
4	2
5	5

Does not exist.

E



E

①⑨  $\frac{x}{12} = \frac{8}{14}$   
 $X = \frac{8 \cdot 6 \cdot 2}{7 \cdot 2}$   
 $= \frac{48}{7}$

B

②④  $Vol = A_{segment} \times 10$

$A = \frac{1}{2}(1)(2\sqrt{3})$   
 $A_{segment} = \frac{1}{3}(\pi(2^2) - \sqrt{3})$   
 $Vol \approx 24.567$

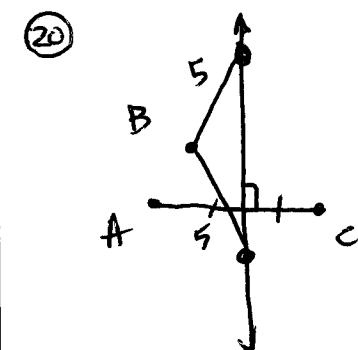
D

②⑨

t	8	6	10
3t	24	18	30
5t-12	28	18	36
t+20	28	26	30

not possible

E



B

②⑤  $HF = FD$        $EF = FG$   
 $y^2 - 30 = y$        $3x = x + 40$   
 $y = 6, -5$        $x = 20$   
 $x + y = 26$

D

③⑩ Supplementary  
 $5x - 12 + x = 180$   
 $6x = 192$   
 $x = 32$

D