Workbook

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#4 a) True b) False c) False d) False

#5 $3x(x+2) = 4x(x+1) \rightarrow x = 2 \therefore P_1 = 20\,u \;\; P_2 = 22\,u$

#6 $x^2 = (x-2)(x+3) \rightarrow x = 6 \therefore Perimeter\ of\ rectangle = 26\,u \;\; Perimeter\ of\ square = 24\,u$

#7 $\frac{x(x+1)}{2} = (x+1)(x-4) \rightarrow x = 8 \therefore The\ square\ has\ an\ area\ of\ 36\,u^2 \therefore perimeter = 24\,u$

#8 $x(x-4) = \frac{(x+2)(x-3)}{2} \rightarrow x = 6 \;\; \therefore m\overline{BC} = 8\ u,\ m\overline{AB} = 5\,u,\ \ Perimeter = 18\,u$

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#11 $\frac{4x}{6} = \frac{8}{x+1} \rightarrow 4x^2 + 4x - 48 \rightarrow x = 3$
$Area\ of\ rectangle\ ① = 24\,u^2$
$Length\ of\ rectangle\ ③ = 8\,u \;\; Perimeter\ of\ rectangle\ ③ = 22\,u$

#12 $x = side\ length\ of\ square; each\ figure\ has\ an\ area\ of\ x^2$
$m\overline{CE} = 2x \;\; m\overline{FE} = \frac{x}{2} \;\; \rightarrow Perimeter\ of\ rectangle = 5x \rightarrow x = 3$
$\therefore Area\ of\ each\ figure\ is\ equal\ to\ 9\ cm^2$

#13 a) $\frac{4x}{5x+4} = \frac{3x}{4x} \rightarrow x = 12 \rightarrow Area\ \ \Delta ABF = 1536\,u^2$
$Area\ \ \Delta AFE = 864\,u^2 \therefore Area\ of\ pentagon = 4800\,u^2$

b) $m\overline{AB} = 80,\ \ m\overline{AE} = 60,\ \ m\overline{ED} = 24,\ \ m\overline{CD} = 100,\ \ m\overline{BC} = 24$
$\rightarrow Perimeter\ of\ pentagon = 288\,u$

#14 $\frac{(x+4)(2x+1)}{2} = x(2x+1) \rightarrow x = 4 \;\; \therefore \Delta ADE \sim \Delta ABC \rightarrow \frac{8}{12} = \frac{9}{m\overline{BC}} \rightarrow m\overline{BC} = 13.5\,u$
$\therefore Area\ of \Delta ABC = 81\,u^2$

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4) $10(5)h = 10^3 \rightarrow h = 20\ cm$

5) a) $\pi(3^2)(6) = \frac{\pi(r^2)(6)}{3} \rightarrow r = 5.2\ cm$

b) $\pi(3^2)(6) = \frac{\pi(3^2)(h)}{3} \rightarrow h = 18\ cm$

#6 a) $h = 4\ cm$
b) $h = 12\ cm$

#7 $radius\ of\ cone = r\sqrt{3}$

#8 $x(x+4)(x-2) = x^3 \rightarrow x = 4 \therefore Area\ of\ prism = 112\ u^2\ \ Area\ of\ cube = 96\ u^2$
$The\ area\ of\ the\ prism\ is\ 16\ u^2\ more\ than\ the\ cube$

#9 a) They are equal
b) The height if the cone is the triple of the prism's height.

#10 $Volume\ of\ cube = 216\ cm^3\ \rightarrow height\ of\ cube = 6\ cm$
$\therefore Volume\ of\ pyramid = 216 = \frac{6^2 h}{3} \rightarrow height\ of\ pyramid = 18\ cm$
$\therefore Total\ height\ of\ sculpture = 24\ cm$