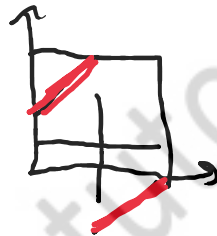


Eton King's Scholarship 2006 B Solutions

1. a) $2\sqrt{2}, \sqrt{9}, \pi, \sqrt{\frac{49}{4}}, \frac{17}{5}$
b) $a = \frac{1}{3}, b = \frac{1}{40}, c = \frac{3}{11}$
2. a) 5
b) 6, -1, -6, -9
3. a) 180°
b) 360°
c) $180(n - 2)^\circ$
d) 12
4. a) 8
b) $12(n - 2)$
c) $(n - 2)^3$
5. a) $\frac{a}{b}$ miles
b) $\frac{5}{a} - \frac{5}{b}$
c) $a = 8$

6. a)



- b) Area between the lines = 3, total area = 4. Probability = $\frac{3}{4}$
7. a) $AX=2\text{cm}$
b) Standard 'special triangle' result
c) Pythagoras on DXE gives $DE=4\sqrt{3}$. So linear ratio is $4\sqrt{3}:12$ and area ratio is the square of that, which is 48:144 or 1:3.
 8. a) 12cm^2 as the base is half but the height is the same
b) Similarly to part a) triangle CFB has area 36cm^2 and triangle CDF has area 6cm^2 . So DBC has area 30cm^2 .
 9. a) $(m+s)(m-s)$
b) 11 and 8, or 29 and 28
c) The medium puzzle has 57 more pieces than the small one, we are told. Hence

result. $l^2 - m^2 = 203$.

d) $s=8, m=11, l=18$

10. a) 32

b) $24 + 16\sqrt{2}$

c) $48 + 32\sqrt{2} - 16\pi$

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