1. Answer: 0. Write $f(x) = 2x^3 - hx + k$. Then $f(-2) = -16 + 2h + k = 0$ and $f(1) = 2 - h + k = 0$. Hence $h = 6, k = 4$ and $|2h - 3k| = 0$.

2. **Answer (C):** The length of side AD is $2r$ as are the distances from the midpoint of the diagonal AC to AD and BC. Hence the length of AB is $4r$ and the area of the rectangle is $(2r)(4r) = 8r^2$.

3. **Answer (D):** $(a * b)^n = a^{bn}$ and $a * (bn) = a^{bn}$.

4. **Answer (A):** The roots are $\frac{1}{2}(-p + \sqrt{p^2 - 4q})$ and $\frac{1}{2}(-p - \sqrt{p^2 - 4q})$. The difference is $\sqrt{p^2 - 4q} = 1$. Hence $p^2 = 4q + 1$ and $p = \sqrt{4q + 1}$.

5. **Answer (E):** The trisection points are $(-1, 3)$ and $(2, 1)$. The slopes of lines joining these points to the point $(3, 4)$ are $\frac{1}{4}$ and 3. Only the line of (E) has slope $\frac{1}{4}$ and none of the lines has slope 3.

6. Answer: 7. Substitution yields $F(4) = 2, F(5) = 3$, and finally $F(6) = 7$.

7. **Answer (E):** Choices (A) and (B) are both false when p and q are 2 and 1 respectively, and choices (C) and (D) are both false when p and q are 1 and -2 respectively. Hence none of these holds for all values of p and q.

8. **Answer (A):** The required difference is 2 because it is positive and its square is 4.

9. Answer: 5. Let a be the first term of the infinite series. Using the formula for the sum, we have $\frac{a}{1-r} = 15$. Also $\frac{a^2}{1-r^2} = 45$. Dividing gives $\frac{a}{1+r} = 3$. Therefore $a = 3 + 3r$ and $a = 15 - 15r$, therefore $a = 5$.

10. **Answer (A):** Regardless of how the diagram is drawn, M lies on the perpendicular bisector of HK so that $MH = MK$ always.