Answers and mark guide

Q	Answer	Working	Marks
1	**x = 7**	3/(x + 3) × 2/(x + 2) = 1/15; (x + 3)(x + 2) = 90; x² + 5x − 84 = 0; x = 7	6
2	**8**	x ÷ (x + 6) = 4/7	4
3	**5**	x ÷ (x + 6) = 5/11	4
4	**4**	x ÷ (x + 6) = 2/5	4
5	**x = 7**	3/(x + 3) × 2/(x + 2) = 1/15; (x + 3)(x + 2) = 90; x² + 5x − 84 = 0; x = 7	6
6	**5**	x ÷ (4 + x) = 5/9	4
7	**3**	x ÷ (8 + x) = 3/11	4
8	**3**	x ÷ (6 + x) = 1/3	4
9	**3**	x ÷ (8 + x) = 3/11	4
10	**5**	x ÷ (5 + x) = 1/2	4
11	**6x² − 14x − 12 = 0**	x(x − 1) ÷ ((x + 4)(x + 3)) = 1/7; cross-multiply and expand	5
12	**x = 7**	3/(x + 3) × 2/(x + 2) = 1/15; (x + 3)(x + 2) = 90; x² + 5x − 84 = 0; x = 7	6
13	**23x² − 167x − 360 = 0**	x(x − 1) ÷ ((x + 6)(x + 5)) = 12/35; cross-multiply and expand	5
14	**9**	Form and solve the quadratic; reject any negative solution	6
15	**11x² − 35x − 36 = 0**	x(x − 1) ÷ ((x + 4)(x + 3)) = 3/14; cross-multiply and expand	5
16	**25/169**	(5/13)²	5
17	**10**	(x/(x + 5))² = 4/9, so x/(x + 5) = 2/3	6
18	**x = 7**	3/(x + 3) × 2/(x + 2) = 1/15; (x + 3)(x + 2) = 90; x² + 5x − 84 = 0; x = 7	6
19	**x = 10**	12/(x(x − 1)) = 2/15; x(x − 1) = 90; x = 10	6
20	**p = 0.4; P(one head) = 0.48**	p² = 0.16; 2 × 0.4 × 0.6	5

My score: _____ / 99 Questions 1–15 = 71 marks (Foundation focus)