AQA Level 2 Further mathematics Further algebra

Section 2: Further equations

Section test

Questions 1 and 2 are about the simultaneous equations

$$x + 3y = 5$$
$$3x - y = 5$$

1) The correct value of x for the solution is

(a) $x = 2$
(b) $x = -1$
(c) $x = 1$
(d) $x = -2$
(e) I don't know

2) The correct value of y for the solution is

(a) $y = -1$
(b) $y = 1$
(c) $y = 2$
(d) $y = -2$
(e) I don't know

3) For the simultaneous equations

$$5a + 7b = 17$$
$$a = 1 - 3b$$

the correct value of a for the solution is

(a) $a = -\frac{3}{2}$
(b) $a = -\frac{7}{2}$
(c) $a = 2$
(d) $a = \frac{11}{2}$
(e) I don't know

4) For the simultaneous equations

$$2x = 5y - 2$$
$$6y = 1 + 4x$$

the correct value of x for the solution is

(a) $x = \frac{7}{8}$
(b) $x = \frac{3}{4}$
(c) $x = -\frac{3}{8}$
(d) $x = \frac{17}{8}$
(e) I don't know

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5) For the simultaneous equations

$$s^2 + 2t^2 = 6$$
$$3s - t = 5$$

the values of t for the solutions are

(a) t = -11 and $t = -\frac{161}{19}$
(b) t = 1 and $t = -\frac{29}{19}$
(c) t = -11 and $t = -\frac{29}{19}$
(d) t = 1 and $t = -\frac{161}{19}$
(e) I don't know

6) For the simultaneous equations

$$x^2 + 2y = 5$$
$$2x - 3y = 12$$

the values of y for the solutions are

(a) y = -6 and $y = -\frac{62}{9}$
(b) y = -2 and $y = -\frac{10}{9}$
(c) y = -2 and $y = -\frac{62}{9}$
(d) y = -6 and $y = -\frac{10}{9}$
(e) I don't know

7) Which of the following is a factor of $x^3 + x^2 + 2x + 8$?

(a) $x + 1$
(b) $x - 1$
(c) $x + 2$
(d) $x - 2$
(e) I don't know

8) $x - 2$ is a factor of $x^3 - 5x^2 + ax + 2$.
The value of a is

(a) -5
(b) 5
(c) -13
(d) 13
(e) I don't know

9) $(x - 1)$ is a factor of $x^3 + x^2 - 5x + 3$. This expression can be written in the form

(a) $(x - 1)(x^2 - 2x + 3)$
(b) $(x - 1)(x^2 + x - 2)$
(c) $(x - 1)(x^2 + 2x - 3)$
(d) $(x - 1)(x^2 - x + 2)$
(e) I don't know

10) Factorise $x^3 - x^2 - 34x - 56$

(a) $(x - 2)(x - 4)(x + 7)$
(b) $(x + 2)(x + 4)(x - 7)$
(c) $(x - 1)(x - 7)(x - 8)$
(d) $(x + 1)(x + 7)(x - 8)$
(e) I don't know