Question 1: Factorise the following expressions

(a) \(4x + 6\)  
(b) \(15x + 20\)  
(c) \(9y - 12\)  
(d) \(5x + 15\)

(e) \(6x - 3\)  
(f) \(4x + 8\)  
(g) \(5y - 25\)  
(h) \(8w + 24\)

(i) \(10y + 15\)  
(j) \(14w + 21\)  
(k) \(20y - 30\)  
(l) \(27x + 18\)

(m) \(6 - 4x\)  
(n) \(9 + 12y\)  
(o) \(45 + 60x\)  
(p) \(16y - 32\)

(q) \(22a + 55\)  
(r) \(100 - 40y\)  
(s) \(6x + 9y\)  
(t) \(4w - 2a\)

(u) \(25y - 35z\)  
(v) \(8x^2 + 20\)  
(w) \(30y^3 - 15\)  
(x) \(42y + 28x - 56c\)

Question 2: Factorise the following expressions

(a) \(x^2 + 7x\)  
(b) \(x^2 - 3x\)  
(c) \(y^2 + y\)  
(d) \(w^2 + 9w\)

(e) \(x^2 - 7x\)  
(f) \(4w^2 + 10w\)  
(g) \(6x^2 - 8x\)  
(h) \(9y^2 - 6y\)

(i) \(10c + c^2\)  
(j) \(5g - g^2\)  
(k) \(14x^2 + 35x\)  
(l) \(40x^2 - 50x\)

(m) \(12x^2 + 18x\)  
(n) \(24x^2 - 18x\)  
(o) \(45y^2 + 60y\)  
(p) \(7w^2 + 2w\)

Question 3: Factorise the following expressions

(a) \(x^2 + xy\)  
(b) \(a^2 - ab\)  
(c) \(xy + xz\)  
(d) \(ab + ac - ad\)

(e) \(6c^2 - 4cd\)  
(f) \(10x^2 + 15xy\)  
(g) \(12ab + 18bc\)  
(h) \(8xy + 4y^2\)

(e) \(7de - 9ce\)  
(f) \(24ab^2 + 28ac\)  
(g) \(30xy + 35xyz\)  
(h) \(4abc - 6a\)

(i) \(8cdf + 10cde\)  
(j) \(7w^2 + 6w + wy\)  
(k) \(8ab^2 - 10ab\)  
(l) \(4xy^2 + 6xy + 2x^2y\)

(m) \(6mn - 7m^2n\)  
(n) \(11g^2h + 22h^2\)

Question 4: Factorise the following expressions

(a) \(x^3 + 2x^2\)  
(b) \(5x^3 - x^2\)  
(c) \(8c^3 + 12c\)  
(d) \(10w^2 - 15w^3\)

(e) \(32y^3 + 24y^2\)  
(f) \(12x^4 + 15x\)  
(g) \(4a^5 - 12a^2\)  
(h) \(8w^9 + w^7\)

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Question 1: Explain why $8x + 3y$ cannot be factorised.

Question 2: James has factorised an expression correctly.
   His answer is $2(7y - 3)$.
   What was the expression that he factorised?

Question 3: Alexandra is trying to factorise fully $15y + 30$.
   Rebecca says the answer is $3(5y + 10)$
   Victoria says the answer is $5(3y + 6)$
   Alexandra says both Rebecca and Victoria are incorrect, why?

Question 4: Can you spot any mistakes?

$$w^2 - 5w$$

$$w(w + 5)$$

(1)

Question 5: Can you spot any mistakes?

Factorise completely

$$24x^2 + 20x$$

$$4(6x^2 + 5x)$$

(2)

Question 6: Can you spot any mistakes?

Factorise completely

$$20a^2c + 30ac$$

$$5ac(4a^2 + 6)$$

(2)