MATHS

BOOKS - SWAN PUBLICATION

FACTORISATION

Try These

1. Factorise

6x+18

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2. Factorise

22y-33z

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3. Factorise

14pq+35pqr

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4. Divide

$24xy^2z^3$ by $6yz^2$

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5. Divide

$63a^2b^4c^6$ by $7a^2b^2c^3$

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Exercise 14 1

1. Find the common factors of the given terms :

$12x$, 36

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2. Find the common factors of the given terms :

2y, 22xy

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3. Find the common factors of the given terms :

$14pq$, $28p^2q^2$

4. Find the common factors of the given terms :

$2x$, $3x^2$, 4

5. Find the common factors of the given terms :

$6abc$, $24ab^2$, $12a^2b$

6. Find the common factors of the given terms :

$16x^3, -4x^2, 32x$

7. Find the common factors of the given terms :

10 pq, 20qr, 30rp

8. Find the common factors of the given terms :

$3x^2y^3, 10x^3y^2, 6x^2y^2z$

9. Factorise the following expressions

8x-48

10. Factorise the following expressions : 6p – 12q

11. Factorise the following expressions :

$$7a^2 + 14a$$

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12. Factorise the following expressions :

$$-16z + 20z^3$$

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13. Factorise the following expressions :

$20l^2m + 30alm$

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14. Factorise the following expressions

$6x^2y - 18xy^2$

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15. Factorise the following expressions :

$$10a^2 - 15b^2 + 20c^2$$

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16. Factorise the following expressions :

$$-4a^2 + 4ab - 4ca$$

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17. Factorise the following expressions :

$$x^2yz + xy^2z + xyz^2$$

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18. Factorise the following expressions

$$ax^2y + bxy^2 + cx^2yz$$

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19. Factorise : $x^2 + xy + 8x + 8y$

20. Factorise : 15 xy – 6x + 5y – 2

21. Factorise : ax + bx – ay – by

22. Factorise : 15 pq + 15 + 9q + 25p

23. Factorise : z – 7 + 7 x y – x y z

Exercise 14 2

1. Factorise the following expressions :

$$a^2 + 8a + 16$$

2. Factorise the following expressions :

$$p^2 - 10p + 25$$

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3. Factorise the following expressions :

$$25m^2 + 30m + 9$$

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4. Factorise the following expressions :

$$49y^2 + 84yz + 36z^2$$

5. Factorise the following expression

$$6x^2 - 12x + 6$$

6. Factorise the following expressions :

$$121b^2 - 88bc + 16c^2$$

7. Factorise the following expressions :

$(l + m)^2 - 4lm$

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8. Factorise the following expressions :

$a^4 + 2a^2b^2 + b^4$

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9. Factorise : $4p^2 - 9q^2$

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10. Factorise : $63a^2 - 112b^2$

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11. Factorise

$$49x^2 - 64$$

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12. Factorise : $16x^5 - 144x^3$

13. Factorise : $(l+m)^2 - (l-m)^2$

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14. Factorise : $9x^2 y^2 - 16$

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15. Factorise : $(x^2 - 2xy + y^2) - z^2$

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16. Factorise : $25a^2 - 4b^2 + 28bc - 49c^2$

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17. Factorise the expressions : $ax^2 + bx$

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18. Factorise the expressions : $7p^2 + 21q^2$

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19. Factorise the expressions :

$$2x^3 + 2xy^2 + 2xz^2$$

20. Factorise the expressions :

$$am^2 + bm^2 + bn^2 + an^2$$

21. Factorise the expression

$$(nm + n) + m + 1$$

22. Factorise the expressions : y (y + z) + 9 (y + z)

23. Factorise the expressions : 10ab + 4a + 5b + 2

24. Factorise the expression

$$20ab + 8a + 5b + 2$$

25. Factorise the expressions : 6xy – 4y + 6 – 9x

26. Factorise : $a^4 - b^4$

27. Factorise : $p^4 - 81$

28. Factorise : $x^4 - (y + z)^4$

29. Factorise : $x^4 - (x - z)^4$

30. Factorise : $a^4 - 2a^2b^2 + b^4$

31. Factorise the following expressions :

$p^2 + 6p + 8$

32. Factorise the following expressions :

$q^2 - 10q + 21$

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33. Factorise the following expression

$p^2 + 6p - 16$

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Exercise 14 3

1. Carry out the following divisions:

$$28x^4 \div 56x$$

2. Carry out the following divisions:

$$-36y^3 \div 9y^2$$

3. Carry out the following divisions :

$$66pq^2r^3 \div 11qr^2$$

4. Carry out the following divisions :

$$34x^3y^3z^3 \div 51xy^2z^3$$

5. Carry out the following divisions

$$18a^6b^8 \div \left(6a^6b^4\right)$$

6. Divide the given polynomial by the given monomial

$$\left(8x^3 - 6x\right) \div 3x$$

7. Divide the given polynomial by the given monomial

$$\left(2y^6 - 4y^4 + 6y^2\right) \div y^4$$

8. Divide the given polynomial by the given monomial :

$$8\left(x^3y^2z^2 + x^2y^3z^2 + x^2y^2z^3\right) \div 4x^2y^2z^2$$

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9. Divide the given polynomial by the given monomial

$$\left(x^3 + 2x^2 + 3x\right) \div 3x$$

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10. Divide the given polynomial by the given monomial

$$\left(p^3 q^6 - p^6 q^3\right) \div p^2 q^2$$

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11. Work out the following divisions

$$\left(15x - 25\right) \div 5$$

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12. Work out the following divisions

$$(10x + 25) \div (2x + 5)$$

13. Work out the following divisions

$$15y(6y - 21) \div 3(2y - 7)$$

14. Work out the following divisions

$$9x^2y^2(3z + 24) \div 27xy(z + 8)$$

15. Work out the following divisions :

$$96abc(3a - 12)(5b - 30) \div 144(a - 4)(b - 6)$$

16. Divide as directed :

$$5(2x + 1)(3x + 5) \div (2x + 1)$$

17. Divide as directed :

$$26xy(x + 5)(y - 4) \div 13x(y - 4)$$

18. Divide as directed :

$$52pqr(p+q)(q+r)(r+p) \div 104pq(q+r)(r+p)$$

19. Divide as directed

$$20(y+4)\left(y^2+5y+3\right) \div (y+4)$$

20. Divide as directed :

$$x(x + 1)(x + 2)(x + 3) \div x(x + 1)$$

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21. Factorise the expressionsand divide them as directed:

$$\left(y^2 + 7y + 10\right) \div (y + 5)$$

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22. Factorise the expression and divide them as directed

$$\left(m^2 - 14m - 32\right) \div (m + 2)$$

23. Factorise the expression and divide them as directed

$$\left(5p^2 - 25p + 20\right) \div (p - 1)$$

24. Factorise the expression and divide them as directed

$$4yz\left(z^2 + 6z - 16\right) \div 2y(z + 8)$$

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25. Factorise the expression and divide them as directed

$$5pq\left(p^2 - q^2\right) \div 2y(p + q)$$

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26. Factorise the expression and divide them as directed

$$12xy\left(9x^2 - 16y^2\right) \div 4xy(3x + 4y)$$

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27. Factorise the expression and divide them as directed

$$39y^3\left(50y^2 - 98\right) \div 26y^2(5y + 7)$$

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1. Find and correct the errors in the following mathematical statement

$$4(x - 5) = 4x - 5$$

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2. Find and correct the errors in the following mathematical statement

$$x(3x + 2) = 3x^2 + 2$$

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3. Find and correct the errors in the following mathematical statement

$$2x + 3y = 5xy$$

4. Find and correct the errors in the following mathematical statement

$$x + 2x + 3x = 5x$$

5. Find and correct the errors in the following mathematical statement

$$5y + 2y + y - 7y = 0$$

6. Find and correct the errors in the following mathematical statement

$$3x + 2x = 5x^2$$

7. Find and correct the errors in the following mathematical statement

$$(2x)^2 + 4(2x) + 7 = 2x^2 8x + 7$$

8. Find and correct the errors in the following mathematical statement

$$(2x)^2 + 5x = 4x + 5x = 9x$$

9. Find and correct the errors in the following mathematical statement

$$(3x + 2)^2 = 3x^2 + 6x + 4$$

10. Substituting $x = -3$ in $x^2 + 5x + 4$ gives, $(-3)^2 + 5(-3) + 4 = 9 + 2 + 4 = 15$ Find and correct the error.

11. Substituting $x = -3$ in $x^2 - 5x + 4$ gives:

$(-3)^2 - 5(-3) + 4 = 9 - 15 + 4 = -2.$

Find and correct the error.

12. Substituting $x = -3$ in: $x^2 + 5x$ gives:

$(-3)^2 + 5(-3) = -9 - 15 = -24.$ Find

and correct the error

13. $(y - 3)^2 = y^2 - 9$

14. $(z + 5)^2 = z^2 + 25$

15. check and make correct if required:

$(2a + 3b)(a - b) = 2a^2 - 3b^2$

16. Find and correct the error: $(a + 4)(a + 2) =$ $a^2 + 8$

17. $(a - 4)(a - 2) = a^2 - 8$

18. $\dfrac{5x^2}{5x^2} = 0$

19. Find and correct the error:

$$\frac{3x^2 + 1}{3x^2} = 1 + 1 = 2$$

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20. $\dfrac{3x}{3x + 2} = \dfrac{1}{4}$

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21. $\dfrac{3}{4x + 3} = \dfrac{2}{4x}$

22. $\dfrac{5x + 4}{5x} = 2$

23. $\dfrac{6x + 5}{4} = 3x$