**/80**

**MP 10 - Ch.3 Factors & Products Review Assignment (ver.12-12-A)**

(2 marks each)

## Multiple Choice
*Identify the choice that best completes the statement or answers the question.*

**D** 1. One neighbour cuts his lawn every 8 days. Another neighbour cuts her lawn every 10 days. Suppose both neighbours cut their lawns today. How many days will pass before both neighbours cut their lawns on the same day again?

    a.   80 days        b.   60 days        c.   2 days        **d.   40 days**

**A** 2. Determine the side length of this square.

Area = 3969 cm$^2$
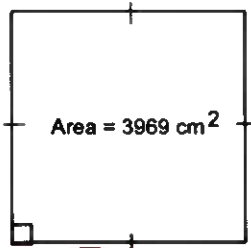
    **a.   63 cm**        b.   15.83 cm        c.   992.25 cm        d.   441 cm

**B**

3. Determine the edge length of this cube.

Volume = 91 125 cm$^3$
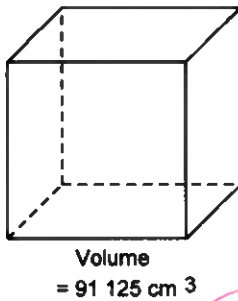
    a.   301.87 cm        **b.   45 cm**        c.   6.71 cm        d.   3375 cm

**A**

4. A cube with volume 729 m$^3$ is to be painted. Each can of paint covers 32 m$^2$. How many cans of paint are needed to paint the cube?

    **a.   16**        b.   23        c.   13        d.   15

**A**

5. Factor the binomial $-10m^2 - 40m^4$.

    **a.   $-10m^2(1+4m^2)$**        c.   $-10(m^2+4m^4)$

    b.   $-10m^2(4m^2)$           d.   $-5m^2(2+8m^2)$

**/10**

**B** 6. Identify the greatest common factor of the terms in the trinomial $6s^3t^4 + 12s^4t^2 - 15s^2t^3$.

    a.   $6s^2t^2$                 c.   $3s^2t^3$

    b.   $3s^2t^2$                 d.   $3s^3t^2$

**A** 7. Factor the trinomial $20a^2b - 25ab + 45ab^2$.

    a.   $5ab(4a - 5 + 9b)$          c.   $ab(20a - 25 + 45b)$

    b.   $5ab(4a - 5ab + 9b)$       d.   $5(4a^2b - 5ab + 9ab^2)$

**C** 8. Which of the following trinomials can be represented by a rectangle? Use algebra tiles to check.

    a.   $y^2 + 3y + 12$             c.   $y^2 + 8y + 15$

    b.   $y^2 + 12y + 5$            d.   $y^2 + 14y + 3$

**C** 9. Factor: $t^2 + 9t - 36$

    a.   $(t - 2)(t + 18)$         c.   $(t + 12)(t - 3)$

    b.   $(t + 2)(t - 18)$        d.   $(t - 12)(t + 3)$

**C** 10. Factor: $v^2 - 13v + 36$

    a.   $(v + 3)(v + 12)$       c.   $(v - 4)(v - 9)$

    b.   $(v - 3)(v - 12)$       d.   $(v + 4)(v + 9)$

**B** 11. Factor: $-84 + 8z + z^2$

    a.   $(42 + z)(-2 + z)$      c.   $(-42 + z)(2 + z)$

    b.   $(-6 + z)(14 + z)$      d.   $(6 + z)(-14 + z)$

**B** 12. Factor: $25x^2 + 58x + 16$

    a.   $(25x + 4)(x + 4)$      c.   $(5x + 4)(5x + 4)$

    b.   $(25x + 8)(x + 2)$      d.   $(5x + 8)(5x + 2)$

**C** 13. Factor: $16s^2 - 137s - 63$

    a.   $(4s - 7)(4s + 9)$      c.   $(16s + 7)(s - 9)$

    b.   $(4s + 7)(4s - 9)$      d.   $(16s - 7)(s + 9)$

**B** 14. Factor: $48y^2 - 116y + 60$

    a.   $(16y - 12)(3y - 5)$    c.   $4(4y - 5)(3y - 3)$

    b.   $4(4y - 3)(3y - 5)$      d.   $4(4y + 3)(3y + 5)$

**D** 15. Factor: $96w^2 + 324w - 42$

    a.   $6(8w + 1)(2w - 7)$    c.   $6(8w - 7)(2w + 1)$

    b.   $6(8w + 7)(2w - 1)$    d.   $6(8w - 1)(2w + 7)$

/20

**C**  16. Expand and simplify: $(10v - 13w)(10v + 13w)$

   a.  $100v^2 + 260vw + 169w^2$        c.  $100v^2 - 169w^2$
   b.  $100v^2 + 169w^2$                d.  $100v^2 - 260vw + 169w^2$

**B**  17. Expand and simplify: $(3c + 2)(2c - 7) + 3(-2c + 1)(7c - 5)$

   a.  $-36c^2 + 8c - 29$               c.  $-36c^2 - 8c - 19$
   b.  $-36c^2 + 34c - 29$              d.  $-36c^2 - 8c - 29$

**D**  18. Factor: $16p^2 - 81q^2$

   a.  $(4p - 9q)^2$                    c.  $(16p - 9q)(p - 9q)$
   b.  $(4p + 9q)^2$                    d.  $(4p + 9q)(4p - 9q)$

**C**  19. Factor: $8y^2 - 58yz + 60z^2$

   a.  $4(2y - 3z)(y - 5z)$             c.  $2(4y - 5z)(y - 6z)$
   b.  $2(4y + 5z)(y - 6z)$             d.  $2(4y - 5z)(y + 6z)$

**A**  20. Factor: $3z^4 - 768z^2$

   a.  $3z^2(z + 16)(z - 16)$           c.  $z^2(z + 48)(z - 16)$
   b.  $3z^2(z + 16)^2$                 d.  $3z^2(z - 16)^2$

**A**  21. Factor: $8m^2 - 34mn + 33n^2$

   a.  $(4m - 11n)(2m - 3n)$            c.  $(4m + 11n)(2m + 3n)$
   b.  $(8m - 33n)(m - n)$              d.  $(4m - 11n)(2m + 3n)$

**Short Answer**

22. Determine the greatest common factor of 735 and 1715.

$$245$$

23. Bill and Betty do chores at home. Bill mows the lawn every 8 days, and Betty bathes the dog every 14 days. Suppose Bill and Betty do their chores today. How many days will pass before they both do their chores on the same day again?
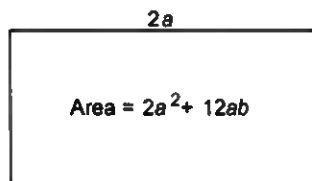
$$56 \text{ days}$$

24. A cube has surface area 6900.0 cm². What is the volume of the cube to the nearest tenth of a cubic centimetre?

    $38,998.4 \text{ cm}^3$

25. Factor the trinomial $8m^2 n - 18n^2 - 2mn$.

    $2n(4m^2 - 9n - m)$

26. Write an expression for the width of this rectangle.

    ```
         2a
    ┌──────────────┐
    │              │
    │ Area = 2a²+ 12ab │
    │              │
    └──────────────┘
    ```

    $a + 6b$

27. Suppose you must use 1 $x^2$-tile and 10 $x$-tiles. Which numbers of 1-tiles could you use to form a rectangle?

    $9, 16, 21, 24, 25$

28. Expand and simplify: $(12 + q)(2 - q)$

    $24 - 10q - q^2$   or   $-q^2 - 10q + 24$

29. Expand and simplify: $(11t + 2)(4t - 3)$

    $44t^2 - 25t - 6$

$\frac{1}{12}$

30. Find and correct the error(s) in this solution of factoring by decomposition.

$90y^2 + 77y - 52 = 90y^2 + 117y - 40y - 52$

*needs to be "−4"*

$= 9y(10y + 13) + 4(10y + 13)$

$= (10y + 13)(9y + 4)$

31. Expand and simplify: $(9z^2 - 2z + 10)(3z + 12)$

$27z^3 + 102z^2 + 6z + 120$

32. Factor fully: $21p^2r - 165pqr - 24q^2r$

$3r(7p + q)(p - 8q)$

**Problem**

33. a) A student says the prime factors of 13 are 1 and 13. Is the student correct? Explain.

incorrect.     1 is not a prime factor.

~~It's prime b/c~~

b) List all the prime numbers between 120 and 140. How do you know they are prime numbers?

$127, 131, 137, 139$

34. A rectangle is divided into 2 smaller rectangles. The area of the rectangle on the left is 209 square inches, and the area of the rectangle on the right is 319 square inches. Determine the greatest possible measure of the side that the two rectangles share. Assume that the dimensions of each rectangle are whole numbers.
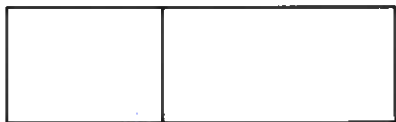
$209 \rightarrow 1, 11, 19, 209$

$319 \rightarrow 1, 11, 29, 319$

$GCF = 11$

35. Germaine wants to paint a cube with volume 2744 m³. Each tub of paint covers 79 m². How many tubs of paint does Germaine need to paint the cube?

$\ell = \sqrt[3]{2744}$

$\ell = 14$

$SA = 6(14)^2$

$= 1176$

$\dfrac{1176}{79} = 14.8 \therefore 15 \text{ tubs}$

5

/14

36. A student is asked to find an integer to replace $\square$ so that $x^2 - x + \square$ can be factored. The student said the only possible integer is $-56$. Is the student correct? Explain.

$$x^2 - x - 72 = (x + 8)(x - 9)$$

$$-2, -6, -12, -20, \ldots,$$

37. Factor. Check by expanding.
$n^2 + n - 42$

$$(n + 7)(n - 6)$$
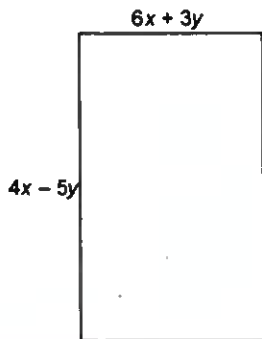
38. Factor $5x^2 + 17x + 6$.

$$\begin{array}{c|c} 30 & 17 \\ \hline X & + \\ \hline 15 \cdot 2 & 17 \end{array}$$
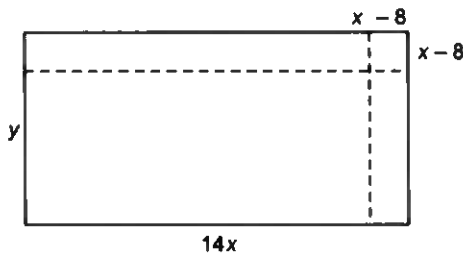
$$5x^2 + 15x + 2x + 6$$
$$5x(x + 3) + 2(x + 3)$$
$$(5x + 2)(x + 3)$$

39. Write a polynomial to represent the area of this rectangle. Simplify the polynomial.

6x + 3y

4x − 5y

$$24x^2 - 18xy - 15y^2$$

40. A rectangle has length $14x$ and width $y$. Strips of width $x - 8$ are cut from the rectangle as shown. Write an expression that represents the area of the rectangle that remains.

x − 8

x − 8

y

14x

$$A = 13xy - 13x^2 + 96x + 8y + 64$$

6

$\dfrac{}{10}$