Worksheet-6

MTH-05: Elementary Algebra (Factoring Polynomials)

First Name: ....

Last Name: ....

1) Find the greatest common factor of 12, 40, 56 and 64.

a) 12

b) 40

c) 4

d) 6

2) Find the greatest common factor of $10x^6$, $10x^7$, $25x^3$ and $20x^7$.

a) $5x^7$

b) $100x^3$

c) $25x^3$

d) $5x^3$

3) Find the greatest common factor of $21p^3q$, $14p^4q^2$ and $42p^2q^5$.

a) $14p^4q$

b) $42p^2q^5$

c) $7p^2q$

d) $42p^2q^2$

4) Factor completely : $21r^5 - 14r^4$

a) $3r^4(7r - 4)$

b) $3r^3(7r - 4)$

c) $7r^4(3r - 2)$

d) $7r^3(3r^2 - 2)$

5) Factor out the common factor : $24r^4s^7 - 6r^2s^3 + 12r^3s^4$

a) $24rs(r^4s^6 - rs^2 + r^2s^2)$

b) $30r^{10}s^{14}$

c) $6r^2s^3(4r^3s^4 + 2rs)$

d) $6r^2s^3(4r^2s^4 - 1 + 2rs)$

6) Factor completely : $x^2 - 5x + 3x - 15$

a) (x - 5) (x - 3)

b) (x - 5) (x + 3)

c) (x + 1) (x - 15)

d) (x + 5) (x + 3)

7) Factor completely : $2x^2 - 4xy + 8xy - 16y^2$. One of the factors is :

a)(2x - y)

b)(x - 4y)

c) (x + 4y)

d)(4x + y)

8) Factor by grouping.

13 x - 11 + 39 ax - 33 a

a)(1 - 3 a) (13 x - 11)

b)(1 + 3 a) (13 x - 11)

c) (1 + 3 a) (13 - 11)

d)3 a (13 x - 11)

9) Factor completely : $x^2 + 10x + 25$

a)(x + 5)(x + 5)

b)(x + 25)(x + 1)

c) (x - 5)(x + 5)

d)(x - 5)(x - 5)

10) Factor : $x^2 - 12x - 28$

a)(x - 14) (x - 2)

b)(x - 2) (x + 14)

c) (x + 2) (x - 14)

d)(x + 14) (x - 2)

11) Factor the following trinomials completely.

$60 - 3x^2 - 3x$

a)-3(x + 5) (x - 4)

b)3(x + 5) (x - 4)

c) 3(x - 5) (x + 4)

d)-3(x - 5) (x + 4)

12) One of the factors of $3x^2 - 22x + 7$ is :

a)(7x - 1)

b)(7x + 1)

c) (3x - 1)

d)(3x + 1)

13) One of the factors of $50x^2 - 40xy + 8y^2$ is :

a)(4x + 5y)

b)(2x - 5y)

c) (5x + 2y)

d)(5x - 2y)

14) Factor completely : $y^2 - 25$

a) $(y - 25)(y + 1)$

b) $(y - 1)(y + 25)$

c) $(y - 5)^2$

d) $(y - 5)(y + 5)$

15) Factor completely : $5y^2 - 125$

a) $(y - 125)(5y + 1)$

b) $(5y - 1)(y + 125)$

c) $5(y - 5)^2$

d) $5(y - 5)(y + 5)$

16) Factor completely : $16x^2 - 9$. One of the factors is :

a) $(x + 3)$

b) $(x - 3)$

c) $(4x + 3)$

d) $(4x - 6)$

17) Factor completely : $81x^2 - 16$. One of the factors is :

a) $(4x - 9)$

b) $(9x + 4)$

c) $(9x + 16)$

d) $(3x - 16)$

18) Factor completely : $y^2 + 18y + 81$

a) $(y - 3)(y + 27)$

b) $(y - 9)^2$

c) $(y + 9)(y - 9)$

d) $(y + 9)^2$

19) Factor $x^3 + 8$.

a) $(x + 2)(x^2 - 2x - 4)$

b) $(x + 2)(x^2 + 2x + 4)$

c) $(x + 2)(x^2 - 2x + 4)$

d) $(x + 2)(x^2 + 2x - 4)$

20) Which of the following is a factor of $x^3 + 64$?

a) $x + 4$

b) $x^2 + 4x + 16$

c) $x^2 - 8x + 16$

d) $x^2 - 8x + 8$

21) Which of the following pairs is a solution of $(x - 2)(x + 3) = 0$?

a) 2, 3

b) 2, - 3

c) - 2, - 3

d) - 2, 3

22) The solution set of $x^2 - 3x = 0$ is :

a) { 0, 0 }

b) { 3, 3 }

c) { 0, 3 }

d) { 0, -3 }

23) The solution set of $x^2 + 6x + 5 = 0$ is :

a) $\{ -1, -5 \}$

b) $\{ 1, 5 \}$

c) $\{ 1, -5 \}$

d) $\{ -1, 5 \}$

24) The solution set of $2x^2 + 5x - 3 = 0$ is :

a) $\left\{ \frac{1}{2}, -3 \right\}$

b) $\left\{ -\frac{3}{2} \right\}$

c) $\left\{ \frac{1}{2}, -2 \right\}$

d) $\left\{ \frac{1}{2}, -\frac{3}{2} \right\}$

25) One of the solutions of $3x^2 + 8x - 3 = 0$ is :

a) $-\frac{1}{3}$

b) 2

c) $\frac{4}{3} + \frac{\sqrt{7}}{6}$

d) $\frac{1}{3}$

26) The solution set of $4T^3 - 16T = 0$ is :

a) $\{ 2, 4 \}$

b) $\{ 0, 2 \}$

c) $\{ 0, 2, -2 \}$

d) $\{ 5, 0 \}$

27) The two numbers whose sum is -5 and whose product is 6 are :

a) 3, 2

b) 1, 6

c) - 5, - 1

d) - 3, - 2

28) The product of two consecutive integers is 210. Find the integers.

a) -14 and 15

b) 14 and 15

c) -15 and 14

d) 10 and 21

29) The width of a rectangle is 3 meters less than its length. The area is 28 square meters. Find the length of the rectangle.

a) 7 meters

b) 14 meters

c) 21 meters

d) 12 meters

30) The width of a rectangle is 4 meters less than its length. The area is 140 square meters. Find the length of the rectangle.

a) 7 meters

b) 14 meters

c) 21 meters

d) 12 meters

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Answer Keys

1) c)4

2) d)$5x^3$

3) c)$7p^2q$

4) c)$7r^4(3r-2)$

5) d)$6r^2s^3(4r^2s^4 - 1 + 2rs)$

6) b)(x - 5) (x + 3)

7) c)(x + 4y)

8) b)(1 + 3 a) (13 x - 11)

9) a)(x + 5)(x + 5)

10) c)(x + 2) (x - 14)

11) a)-3(x + 5) (x - 4)

12) c)(3x - 1)

13) d)(5x - 2y)

14) d)$(y - 5)(y + 5)$

15) d)$5(y - 5)(y + 5)$

16) c)(4x + 3)

17) b)(9x + 4)

18) d)$(y + 9)^2$

19) c)$(x + 2)(x^2 - 2x + 4)$

20) a)$x + 4$

21) b)2, - 3

22) c){ 0, 3 }

23) a){ - 1, - 5 }

24) a)$\left\{\frac{1}{2} , - 3\right\}$

25) d)$\frac{1}{3}$

26) c){ 0, 2, - 2 }

27) d)- 3, - 2

28) b)14 and 15

29) a)7 meters

30) b)14 meters