MIAMI DADE COLLEGE
INTERAMERICAN CAMPUS
DEPARTMENT OF MATHEMATICS
MAT 0020
STUDY GUIDE
FACTORIS, DIVISORS AND FACTORING
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Find the greatest common factor of the terms.

1) $14m^5, 56m^8$

A) $784m^3$ B) $14m^5$ C) $56m^5$ D) $14m^3$

2) $140(x - 5)^2, 28(x - 5)^7$

A) $140(x - 5)^7$ B) $50(x - 5)^5$ C) $6(x - 5)$ D) $28(x - 5)^2$

Factor out the greatest common factor.

3) $24m^8 + 36m^6 - 60m^4$

A) No common factor (except 1)
B) $12(2m^8 + 3m^6 - 5m^4)$
C) $m^4(24m^4 + 36m^2 - 60)$
D) $12m^4(2m^4 + 3m^2 - 5)$

4) $21m^2 - 17r^3$

A) $3(7m^2 - 5r^3)$
B) No common factor (except 1)
C) $m^2(21 - 17m)$
D) $2(10m^2 + 8r^3)$

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

A) $(4x - 3)(5x + 3)$ B) $(20x - 3)(x + 3)$ C) $(20x + 3)(x - 3)$ D) $(4x + 3)(5x - 3)$

6) $w^8 - 37wx^4 + 31w^3x^6 - 37w^8x^4$

A) $wx(w^7 - 37x^3 + 31w^2x^5 - 37w^7x^3)$
B) $wx^4(w^7 - 37 + 31w^2x^2 - 37w^7)$
C) $w(w^7 - 37x^4 + 31w^2x^6 - 37w^7x^4)$
D) $w^2(w^7 - 37x^3 + 31w^2x^5 - 37w^7x^3)$

Factor by grouping.

7) $8x^2 - 20x - 6x + 15$

A) $(8x + 3)(x + 5)$ B) $(4x + 3)(2x + 5)$ C) $(8x - 3)(x - 5)$ D) $(4x - 3)(2x - 5)$

8) $12a^3 - 18a^2b - 10ab^2 + 15b^3$

A) $(6a^2 - 5b^2)(2a - 3b)$
B) $(6a^2 + 5b^2)(2a + 3b)$
C) $(12a^2 - 5b^2)(a - 3b)$
D) $(6a^2 - 5b)(2a - 3b)$

9) $18 - 3t - 6y + ty$

A) $(6 + t)(3 + y)$ B) $(6 - t)(3 - y)$ C) $(6 + t)(3 - y)$ D) $(6 - t)(3 + y)$

Factor completely.

10) $x^2 - 3x - 40$

A) $(x + 5)(x - 8)$ B) Prime C) $(x - 5)(x + 8)$ D) $(x - 5)(x + 1)$

11) $x^2 + 11x + 12$

A) $(x - 6)(x + 2)$ B) $(x + 6)(x - 2)$ C) $(x + 12)(x - 1)$ D) Prime

12) $x^2 + 2xy - 99y^2$

A) $(x - 11y)(x + y)$ B) $(x - 11y)(x + 9y)$ C) $(x + 11y)(x - 9y)$ D) $(x - y)(x + 9y)$

Factor as completely as possible. If unfactorable, indicate that the polynomial is prime.

13) $7x^2 - 7x - 42$

A) $(7x + 14)(x - 3)$ B) $7(x + 2)(x - 3)$ C) Prime D) $7(x - 2)(x + 3)$

14) $4x^3 + 4x^2 - 48x$

A) $(4x^2 + 12x)(x - 4)$
B) $4x(x - 3)(x + 4)$
C) $(x - 3)(4x^2 + 16)$
D) Prime
E) $4x(x + 3)(x - 4)$

15) $9x^2 + 18x + 8$

A) $(3x - 2)(3x - 4)$ B) $(9x + 2)(x + 4)$ C) Prime D) $(3x + 2)(3x + 4)$

16) $15z^2 - 2z - 8$

A) $(3z + 2)(5z - 4)$ B) $(15z + 2)(z - 4)$ C) Prime D) $(3z - 2)(5z + 4)$

17) $6x^2 - 26x - 20$

A) $(6x + 4)(x - 5)$ B) Prime C) $2(3x - 2)(x + 5)$ D) $2(3x + 2)(x - 5)$

18) $6x^2y^2 - 5xy^2 - 6y^2$

A) $y^2(x + 2)(6x - 3)$ B) $(2x + 2y)(3x - 3y)$ C) $(3x + 2y)(2x - 3y)$ D) $y^2(3x + 2)(2x - 3)$

19) $x^4 - 7x^3 + 6x^2$

A) $x^2(x + 1)(x - 6)$ B) $x^{-1}(x^2 - 7x + 6)$ C) $x^2(x - 1)(x - 6)$ D) $x^2(x - 1)(x + 6)$

20) $-2x^2 - 3x + 9$

A) Prime B) $-1(2x + 3)(x - 3)$ C) $(-2x - 3)(x + 3)$ D) $-1(2x - 3)(x + 3)$

Factor completely.

21) $81x^2 - 25$

A) $(9x + 5)^2$ B) $(9x - 5)^2$ C) Prime D) $(9x + 5)(9x - 5)$

22) $147a^4 - 75b^2$

A) $3(7a^2 + 5b)^2$ B) $3(7a^2 + 5b)(7a^2 - 5b)$
C) $3(7a^2 - 5b)^2$ D) Prime

Factor.

23) $x^2 + 32x + 256$

A) $(x + 16)^2$ B) $(x + 16)(x - 16)$ C) $(x - 16)^2$ D) Prime

24) $4x^2 - 12x + 9$

A) $(2x - 3)(2x + 3)$ B) $(2x + 3)^2$ C) Prime D) $(2x - 3)^2$

Solve the equation.

25) $(x - 3)(x + 8) = 0$

A) {3, -8} B) {-3, 8} C) {3, 8} D) {3, -3, 8, -8}

26) $x(6x + 18) = 0$

A) $\{0, -\frac{1}{3}\}$ B) {0, 3} C) $\{0, \frac{1}{3}\}$ D) {0, -3}

27) $\frac{7}{8}z(z - \frac{1}{6}) = 0$

A) $\{\frac{1}{6}, 0\}$ B) $\{-\frac{7}{8}, \frac{1}{6}\}$ C) $\{-\frac{1}{6}, 0\}$ D) $\{\frac{7}{8}, \frac{1}{6}\}$

28) $64k^2 - 49 = 0$

A) $\{\frac{8}{7}, -\frac{7}{8}\}$ B) $\{\frac{7}{8}, -\frac{7}{8}\}$ C) {7, 0} D) $\{\frac{8}{7}, 0\}$

29) $20y^2 + 41y + 20 = 0$

A) $\left\{\frac{4}{5}, -\frac{5}{4}\right\}$ B) $\left\{-\frac{1}{5}, -\frac{1}{4}\right\}$ C) $\left\{\frac{4}{5}, \frac{5}{4}\right\}$ D) $\left\{-\frac{4}{5}, -\frac{5}{4}\right\}$

30) $5x^2 - 25x + 30 = 0$

A) {2, 3} B) {-2, -3} C) {5, 2, 3} D) {0, 2, 3}

31) $36s^3 - 24s^2 + 7s = 19s$

A) $\{-\frac{1}{3}, 1\}$ B) $\{-\frac{1}{3}, 1, 0\}$ C) {0} D) $\{\frac{1}{3}, -\frac{1}{3}\}$

32) $(x - 5)(20x^2 + 68x + 45) = 0$

A) $\left\{5, \frac{9}{10}, \frac{5}{2}\right\}$ B) $\left\{-\frac{1}{5}, -\frac{5}{2}\right\}$ C) $\left\{5, -\frac{9}{10}, -\frac{5}{2}\right\}$ D) {5}

33) $5x(x - 4) = (4x + 4)(x - 4)$

A) {-4, -4} B) {4} C) {4, 4} D) {-4}