

M117 INTERMEDIATE ALGEBRA - PRACTICE TEST - CHAPTER 8

Factor completely.

1) $64x^6y^9 - 16x^4y^7 + 56x^2y^4$

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

3) $12y^2 + 17y + 6$

4) $10x^2 - 35x - 20$

5) $49x^2 + 64$

6) $50a^4 - 98b^2$

7) $4x^2 - 12xy + 9y^2$

8) $4y^2 + 18y - 10$

9) $z^2 - 16$

10) $36x^2 - 25$

11) $4a^2 - (b - 3)^2$

12) $x^3 + 64y^3$

13) $27 - t^3$

14) $x^2 + 62x + 63$

15) $x^4 - 12x^2 - 64$

16) $-30a^2 - 58a - 24$

17) $x^3 - 36x + 2x^2 - 72$

Solve the equation.

18) $-7x + 4(-3x - 7) = -39 - 8x$

19) $3.1x - 8.5 + 0.1x = 9.4 + 3.2x - 17.9$

20) $2x + 8 + 5x - 5 = 9x - 2x + 0$

21) $\frac{r+6}{3} = \frac{r+8}{6}$

22) $x^2 - x = 56$

23) $x(4x + 22) = 12$

24) $3x^2 + 18x - 2x - 12 = 0$

25) $x^4 + 5x^2 = 36$

26) $9b^2 + 18b + 5 = 0$

Multiply.

27) $(-2p^9)(8p^3)$

28) $-4ax^7(-6ax^6 - 9x^4 + 7a)$

29) $4ax^3(2ax^7 - 2x^5)$

30) $(x + 2y)(-3x - 12y)$

31) $(4x - 8)(4x + 8)$

32) $(7x + 10y)^2$

33) $(3p + 13)(3p - 13)$

Find the Quotient:

34) $\frac{-32x^4y^5z^8}{x^2yz^3}$

35) The width of a rectangle is 6 kilometers less than twice its length. If its area is 176 square kilometers, find the dimensions of the rectangle.

36) One leg of a right triangle is 3 cm more than the length of the other leg. The hypotenuse is 15 cm long. Find the lengths of the two legs.

37) Find three consecutive integers such that the product of the smallest and largest is 1 less than nine times the middle integer.

38) Gloria collected 23 fantail and comet goldfish. There were 3 fewer fantails than comets. How many comets did Gloria have?

39) How many liters of a 30% alcohol solution must be mixed with 80 liters of a 80% solution to get a 50% solution?

40) Mardi received an inheritance of \$60,000. She invested part at 7% and deposited the remainder in tax-free bonds at 8%. Her total annual income from the investments was \$4400. Find the amount invested at 7%.

41) The side of a square equals the length of a rectangle. The width of the rectangle is 4 meters longer than its length. The sum of the areas of the square and the rectangle is 30 square centimeters. Find the side of the square.

Answer Key

Testname: M117-TEST1-PRACTICE EXAM.TST

- 1) Answer: $8x^2y^4(8x^4y^5 - 2x^2y^3 + 7)$
- 2) Answer: $(3a^2 - 2b^2)(5a - 4b)$
- 3) Answer: $(4y + 3)(3y + 2)$
- 4) Answer: $5(2x + 1)(x - 4)$
- 5) Answer: Not Factorable
- 6) Answer: $2(5a^2 + 7b)(5a^2 - 7b)$
- 7) Answer: $(2x - 3y)^2$
- 8) Answer: $2(2y - 1)(y + 5)$
- 9) Answer: $(z + 4)(z - 4)$
- 10) Answer: $(6x + 5)(6x - 5)$
- 11) Answer: $(2a - (b - 3))(2a + (b - 3))$ or $(2a - b + 3)(2a + b - 3)$
- 12) Answer: $(x + 4y)(x^2 - 4xy + 16y^2)$
- 13) Answer: $(3 - t)(9 + 3t + t^2)$
- 14) Answer: Prime polynomial
- 15) Answer: $(x + 4)(x - 4)(x^2 + 4)$
- 16) Answer: $-2(3a + 4)(5a + 3)$
- 17) Answer: $(x + 6)(x - 6)(x + 2)$
- 18) Answer: $\{1\}$
- 19) Answer: $\{x \mid x \text{ is a real number}\}$
- 20) Answer: $\{ \}$
- 21) Answer: $\{-4\}$
- 22) Answer: $\{-7, 8\}$
- 23) Answer: $\{\frac{1}{2}, -6\}$
- 24) Answer: $2/3, -6$
- 25) Answer: $2, -2$
- 26) Answer: $\left\{-\frac{1}{3}, -\frac{5}{3}\right\}$
- 27) Answer: $-16p^{12}$
- 28) Answer: $24a^2x^{13} + 36ax^{11} - 28a^2x^7$
- 29) Answer: $8a^2x^{10} - 8ax^8$
- 30) Answer: $-3x^2 - 18xy - 24y^2$
- 31) Answer: $16x^2 - 64$
- 32) Answer: $49x^2 + 140xy + 100y^2$
- 33) Answer: $9p^2 - 169$
- 34) Answer: $-32x^2y^4z^5$
- 35) Answer: length = 11 km, width = 16 km
- 36) Answer: 9cm and 12cm
- 37) Answer: 8, 9, and 10 or -1, 0, 1
- 38) Answer: 13 comets
- 39) Answer: 120 liters
- 40) Answer: \$40,000
- 41) Answer: 3 cm