

Summer Assignment - Part 1

Please submit this assignment to room 603 during Freshman Orientation or by August 1.

Directions:

Step 1: Print out and complete ALL Sections below.

Step 2: Using the included answer key, grade your work.

Step 3: Complete the Analysis Form to determine your strengths and weaknesses.

Step 4: Complete Summer Assignment - Part 2 for each identified weakness.

Step 5: Complete the Analysis Form.

Section 1: Quadratics

Factor each completely.

1) $x^2 - 4x$

2) $x^2 + 17x + 70$

3) $2x^2 - 10x - 28$

4) $3m^3 + 22m^2 - 16m$

5) $9n^3 - 64n$

6) $9n^2 - 33n + 28$

7) $6n^3 + 5n^2 - 6n$

8) $8x^2 - 30x - 27$

9) $8x^3 + 16x^2 - 90x$

10) $8m^3 + 24m^2 + 18m$

Solve each equation by factoring.

11) $16x^2 - 18x - 20 = 2x^2$

12) $11x^2 - 146x + 180 = -7x^2 - 8x$

Solve each equation by taking square roots.

13) $5x^2 - 4 = 16$

14) $64n^2 - 10 = -9$

15) $8m^2 + 2 = 234$

16) $5x^2 + 5 = 245$

Solve each equation by completing the square.

17) $p^2 + 18p + 9 = -3$

18) $b^2 - 10b - 4 = 3$

Solve each equation with the quadratic formula.

19) $6x^2 + x - 40 = 0$

20) $5a^2 - 2a - 2 = 0$

21) $10n^2 + 6n - 26 = -8$

22) $4n^2 - n - 136 = 2$

Section 2: Radical Expressions

List the first 30 perfect square numbers from memory:

Simplify.

23) $\sqrt{20}$

24) $\sqrt{448}$

25) $2\sqrt{150x^2}$

26) $-7\sqrt{108m}$

27) $-3\sqrt{196m^2p^4q^2}$

28) $-5\sqrt{50x^3y^2z^4}$

Simplify.

29) $\sqrt{2x^3} \cdot 2\sqrt{2x^2}$

30) $\sqrt{15v^3} \cdot -3\sqrt{5v^3}$

31) $5\sqrt{3}(\sqrt{6} + 5x)$

32) $4\sqrt{5}(\sqrt{2} + 3x)$

33) $(-4\sqrt{3} + \sqrt{5})(2\sqrt{3} + \sqrt{5})$

34) $(4 + \sqrt{5r})(1 - 2\sqrt{5})$

35) $2\sqrt{2} - 4\sqrt{2}$

36) $-4\sqrt{3} + 4\sqrt{27}$

Section 3: Properties of Exponents

Simplify. Your answer should contain only positive exponents.

37) $2y \cdot 4y$

38) $3u^{-2}v^4 \cdot u^0$

39) $(3x^0y^{-1})^2$

40) $(2y)^{-4}$

41) $\frac{2x^2y^4}{4x^{-4}}$

42) $\frac{2x^{-2}y^3}{x^4}$

43) $\left(\frac{(2ab^{-4} \cdot a^{-3}b^0)^2}{(2b^2)^3}\right)^2$

44) $\left(\frac{x^3y^2}{2y^0 \cdot 2x^{-4}y^{-4}}\right)^3$

Answers to Summer Assignment - Part 1

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|---|---|--|-------------------------------------|
| 1) $x(x-4)$ | 2) $(x+7)(x+10)$ | 3) $2(x+2)(x-7)$ | 4) $m(3m-2)(m+8)$ |
| 5) $n(3n-8)(3n+8)$ | 6) $(3n-7)(3n-4)$ | 7) $n(2n+3)(3n-2)$ | 8) $(2x-9)(4x+3)$ |
| 9) $2x(2x+9)(2x-5)$ | 10) $2m(2m+3)^2$ | 11) $\left\{-\frac{5}{7}, 2\right\}$ | 12) $\left\{\frac{5}{3}, 6\right\}$ |
| 13) $\{2, -2\}$ | 14) $\left\{\frac{1}{8}, -\frac{1}{8}\right\}$ | 15) $\{\sqrt{29}, -\sqrt{29}\}$ | 16) $\{4\sqrt{3}, -4\sqrt{3}\}$ |
| 17) $\{-9 + \sqrt{69}, -9 - \sqrt{69}\}$ | 18) $\{5 + 4\sqrt{2}, 5 - 4\sqrt{2}\}$ | 19) $\left\{\frac{5}{2}, -\frac{8}{3}\right\}$ | |
| 20) $\left\{\frac{1 + \sqrt{11}}{5}, \frac{1 - \sqrt{11}}{5}\right\}$ | 21) $\left\{\frac{-3 + 3\sqrt{21}}{10}, \frac{-3 - 3\sqrt{21}}{10}\right\}$ | 22) $\left\{6, -\frac{23}{4}\right\}$ | |
| 23) $2\sqrt{5}$ | 24) $8\sqrt{7}$ | 25) $10x\sqrt{6}$ | 26) $-42\sqrt{3m}$ |
| 27) $-42p^2mq$ | 28) $-25z^2xy\sqrt{2x}$ | 29) $4x^2\sqrt{x}$ | 30) $-15v^3\sqrt{3}$ |
| 31) $15\sqrt{2} + 25x\sqrt{3}$ | 32) $4\sqrt{10} + 12x\sqrt{5}$ | 33) $-19 - 2\sqrt{15}$ | |
| 34) $4 - 8\sqrt{5} + \sqrt{5r} - 10\sqrt{r}$ | 35) $-2\sqrt{2}$ | 36) $8\sqrt{3}$ | |
| 37) $8y^2$ | 38) $\frac{3v^4}{u^2}$ | 39) $\frac{9}{y^2}$ | 40) $\frac{1}{16y^4}$ |
| 41) $\frac{x^6y^4}{2}$ | 42) $\frac{2y^3}{x^6}$ | 43) $\frac{1}{4b^{28}a^8}$ | 44) $\frac{x^{21}y^{18}}{64}$ |