

Math II (Uni) - Unit 1 Review

Factor each completely.

1) $3n^3 - 14n^2 - 80n$

2) $8p^3 - 20p^2 - 12p$

3) $12n^2 + 64n - 48$

4) $30n^2 + 24n - 96$

5) $b^2 - 2b - 14$

6) $6x^2 - 24x - 192$

7) $60x^2 - 318x + 216$

8) $8n^2 + 37n + 20$

9) $9v^2 - 16$

10) $9v^2 - 4$

11) $16p^2 - 24p + 9$

12) $25n^2 - 40n + 16$

13) $18v^2 - 50$

14) $4p^2 - 100$

Solve each equation by factoring.

15) $a^2 = 4a + 21$

16) $p^2 + 14p = -48$

17) $x^2 - 40 = -3x$

18) $5n^2 = -10n$

19) $33m^2 + 15m + 2 = -2m - 2m^2$

20) $15r^2 - 31r = -6 + 2r$

Factor each completely.

21) $10a^3 + 25a^2 - 2a - 5$

22) $9n^3 + 6n^2 - 12n - 8$

23) $4mn + 7m + 20n^2 + 35n$

24) $144mn + 24m - 90n - 15$

25) $175ny^2xw - 294ny^4f + 245ny^2xf - 210ny^4w$

26) $18u^2v - 72ux - 108u^2 + 12uxv$

27) $64x^3 + 125$

28) $216a^3 + 1$

29) $64u^3 - 27$

30) $343x - 64x^4$

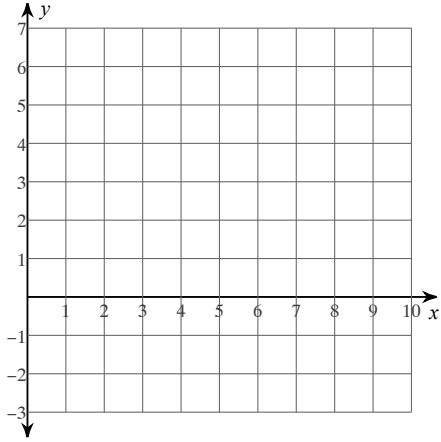
31) $4x^4 - 400$

32) $5a^4 - 30a^2 + 25$

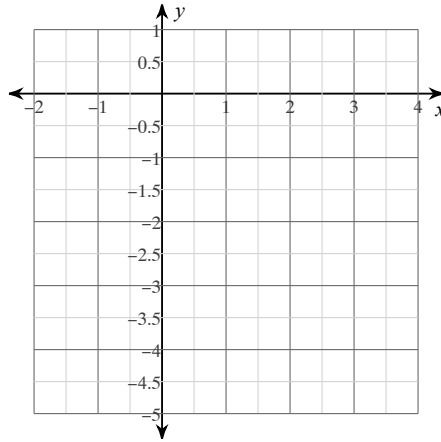
33) $5x^4 + 36x^2 - 81$

Sketch the graph of each function. Find the vertex and the axis of symmetry.

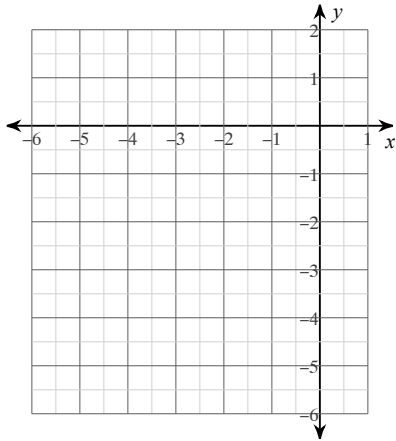
34) $f(x) = 2(x - 2)^2 - 2$



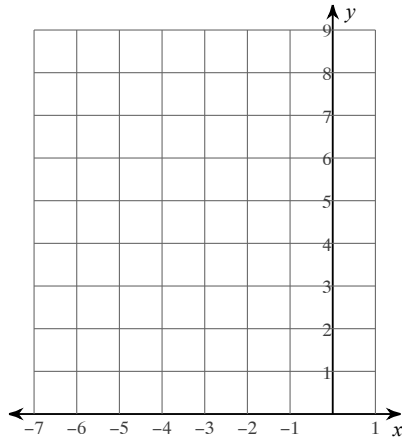
35) $f(x) = -\frac{1}{2}(x - 2)^2 - 1$



36) $f(x) = x^2 + 8x + 12$



37) $f(x) = x^2 + 6x + 13$



Find the value that completes the square and then rewrite as a perfect square.

38) $n^2 - 8n + \underline{\quad}$

39) $a^2 + 6a + \underline{\quad}$

40) $y^2 - 26y + \underline{\quad}$

41) $x^2 + 19x + \underline{\quad}$

Find the value of c that completes the square.

42) $x^2 + 36x + c$

43) $z^2 - 10z + c$

Solve each equation by completing the square.

44) $x^2 - 20x - 28 = 3$

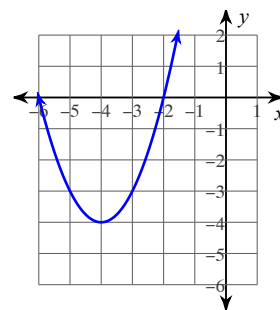
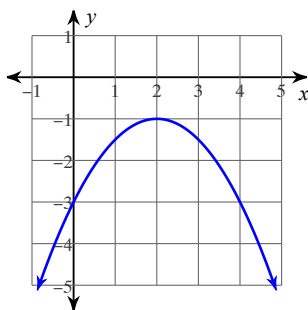
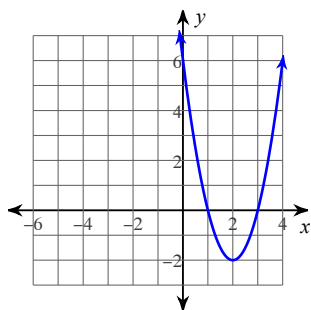
45) $n^2 + 10n - 19 = 5$

46) $x^2 - 14x + 21 = 2$

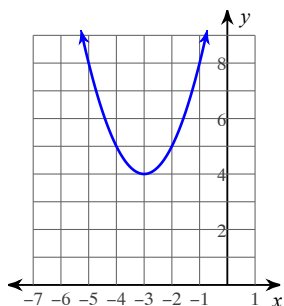
47) $10k^2 + 20k - 25 = 5$

Answers to Math II (Uni) - Unit 1 Review

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|---------------------------------|---------------------------------|---|-------------------------------------|
| 1) $n(3n + 10)(n - 8)$ | 2) $4p(2p + 1)(p - 3)$ | 3) $4(3n - 2)(n + 6)$ | 4) $6(5n^2 + 4n - 16)$ |
| 5) Not factorable | 6) $6(x - 8)(x + 4)$ | 7) $6(5x - 4)(2x - 9)$ | 8) $(n + 4)(8n + 5)$ |
| 9) $(3v + 4)(3v - 4)$ | 10) $(3v + 2)(3v - 2)$ | 11) $(4p - 3)^2$ | 12) $(5n - 4)^2$ |
| 13) $2(3v + 5)(3v - 5)$ | 14) $4(p + 5)(p - 5)$ | 15) $\{-3, 7\}$ | 16) $\{-6, -8\}$ |
| 17) $\{-8, 5\}$ | 18) $\{-2, 0\}$ | 19) $\left\{-\frac{1}{5}, -\frac{2}{7}\right\}$ | 20) $\left\{\frac{1}{5}, 2\right\}$ |
| 21) $(5a^2 - 1)(2a + 5)$ | 22) $(3n^2 - 4)(3n + 2)$ | 23) $(m + 5n)(4n + 7)$ | 24) $3(8m - 5)(6n + 1)$ |
| 25) $7ny^2(5x - 6y^2)(5w + 7f)$ | 26) $6u(3u + 2x)(v - 6)$ | 27) $(4x + 5)(16x^2 - 20x + 25)$ | |
| 28) $(6a + 1)(36a^2 - 6a + 1)$ | 29) $(4u - 3)(16u^2 + 12u + 9)$ | 30) $x(7 - 4x)(49 + 28x + 16x^2)$ | |
| 31) $4(x^2 + 10)(x^2 - 10)$ | 32) $5(a^2 - 5)(a - 1)(a + 1)$ | 33) $(5x^2 - 9)(x^2 + 9)$ | |
| 34) | 35) | 36) | |



37)



38) $16; (n - 4)^2$

39) $9; (a + 3)^2$

40) $169; (y - 13)^2$

41) $\frac{361}{4}; \left(x + \frac{19}{2}\right)^2$

42) 324

43) 25

44) $\{10 + \sqrt{131}, 10 - \sqrt{131}\}$

45) $\{2, -12\}$

46) $\{7 + \sqrt{30}, 7 - \sqrt{30}\}$

47) $\{1, -3\}$