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# Algebra II CP

## Summer Math Packet

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## *Congratulations and welcome to Algebra 2!*

This summer math packet is a review of some of the concepts learned in Algebra 1 and Geometry that will be needed for Algebra 2. It will assure that all students begin the school year on the same page and with equal opportunity to succeed in Algebra 2.

### **Instructions for completing the packet:**

- Please print the packet or use loose leaf paper to complete the packet by hand showing all work. Work must be neat and legible.
- Please use the websites provided to help you if you need reminders on how to complete some practice problems.
- Take notes as you complete your work. You will be given a quiz on this material the first week of school.
- Work on the packet with your friends. Help each other. Every student is responsible for knowing the material in this packet when you return in August. We will review as a team and everyone will be expected to participate.
- Bring your packet to our first class together. It will be collected for a grade. Only packets done with paper and pencil will be accepted.

### **Helpful Websites:**

<http://www.mathtv.com/>

<http://www.purplemath.com/modules/index.htm>

<https://www.khanacademy.org>

### **Helpful for graphing functions:**

<https://www.education.ti.com/en/resources/family-of-functions>

**Evaluate each expression.**

1)  $(-3) + (-5) + 6$

2)  $8 - 4 + (-5)$

3)  $1 - (-4) - (-3)$

4)  $(-5) + 6 - (-3)$

**Find each product.**

5)  $(2)(-3)(7)$

6)  $(-7)(10)(-7)$

7)  $(3)(-8)(-8)$

8)  $(-7)(4)(-5)$

**Find each quotient.**

$$9) \frac{2.21}{1.7}$$

$$10) \frac{-8.7}{-1}$$

$$11) \frac{-6.9}{-0.012}$$

$$12) \frac{9}{-0.8}$$

**Evaluate each expression.**

$$13) 5 + 5 - 3$$

$$14) \frac{12}{4 - 2}$$

$$15) (4 + 1)^2$$

$$16) (5)(6) - 2$$

$$17) 5^2 - 4$$

$$18) 4 + 3^3$$

**Evaluate each using the values given.**

19)  $2y - x$ ; use  $x = 3$ , and  $y = 3$

20)  $c + b + b$ ; use  $b = 3$ , and  $c = 1$

21)  $m + m + q$ ; use  $m = 1$ , and  $q = 1$

22)  $\frac{np}{6}$ ; use  $n = 6$ , and  $p = 5$

23)  $p + 4q$ ; use  $p = 5$ , and  $q = 2$

**Evaluate each expression.**

24)  $(-4)^2 + 10 - (-2) - (-7)$

25)  $(-2) + 6 + (-4) + 9 - 1$

**Solve each equation.**

26)  $p - 18 = -14$

27)  $x - 10 = -24$

$$28) 5n = 100$$

$$29) 3 = \frac{x}{5}$$

$$30) \frac{x}{6} = -8$$

$$31) -6 + n = 1$$

$$32) -9x = -135$$

$$33) -22 = -6 + b$$

$$34) -17 + v = -30$$

$$35) x + 16 = 20$$

$$36) -10 = x + 7$$

$$37) 15 = 3x$$

$$38) -187 = -17x$$

$$39) -13 + x = -23$$

$$40) \frac{n}{19} = 8$$

$$41) 7(-7 - 3m) = 19 - 4m$$

$$42) 2(k + 6) = 10 + 3k$$

$$43) 28 + 6p = -4(p - 7)$$

$$44) 18 + 2k = 4(k + 6)$$

$$45) -k - 24 = -(-6k + 3)$$

$$46) 10 = \frac{n}{6} + 7$$

$$47) \frac{a}{4} - 10 = -5$$

$$48) -5(x - 10) = 130$$

$$49) \frac{-10 + b}{25} = -1$$

$$50) -26 = -2p + 2$$

$$51) 10 - 7m = 115$$

$$52) 2 = \frac{a - 10}{3}$$

$$53) -7 + \frac{v}{3} = -10$$

$$54) -2 = -2 + \frac{x}{7}$$

$$55) 1 = -8 + \frac{x}{2}$$

**Simplify. Your answer should contain only positive exponents.**

$$56) 2nm^3 \cdot -5n^5$$

$$57) x^4y^5 \cdot -y$$

$$58) 2x^2y^2 \cdot -3x^5y^2 \cdot -3xy^3$$

$$59) (2uv^4)^5$$

$$60) (-3v)^5$$

$$61) (3a)^4$$

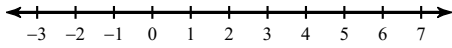
$$62) -\frac{3a^5b^5}{2a^5}$$

$$63) -\frac{5yx^3}{5x^3y^5}$$

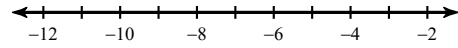
$$64) -\frac{3x^5y^3}{5x^5y^2}$$

**Solve each inequality and graph its solution.**

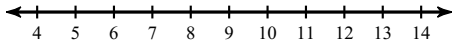
65)  $5 + x < 6$



66)  $n - 5 < -15$



67)  $18a < 144$



**Find the slope of the line through each pair of points.**

68)  $(-12, -10), (-3, -18)$

69)  $(-12, 19), (-8, 3)$

70)  $(8, -10), (-12, -9)$

**Simplify each expression.**

$$71) (a - a^2 - 3a^3) + (7a^3 + 6a - 7a^2)$$

$$72) (8a - 7a^4 + 8) + (3a - 6a^3 - a^4)$$

$$73) (6k + 7k^2 + 7k^4) - (5 + 6k - 3k^4)$$

**Find each product.**

$$74) (2a + 3)(5a + 1)$$

$$75) (4n - 1)(2n + 3)$$

$$76) (5a - 5)(2a + 4)$$

**Simplify.**

77)  $\sqrt{24}$

78)  $\sqrt{448}$

79)  $\sqrt{32}$

**Solve each problem.**

80) What is 54% of 19?

81) 113 is what percent of 137.5?

82) 53% of 144 is what?

**Solve each proportion.**

83)  $\frac{4}{3} = \frac{10}{x}$

84)  $\frac{v}{4} = \frac{5}{7}$

$$85) \frac{x}{9} = \frac{4}{6}$$

$$86) \frac{6}{4b} = \frac{2}{6}$$

$$87) \frac{5}{k} = \frac{7}{8}$$

**Simplify each expression.**

$$88) 1 - 9m + 2 - m$$

$$89) -7b - 6 - 9b + 3$$

$$90) 9a - 2 - 1$$

$$91) -6k + 7k$$

$$92) 7 + 5r + 1 - 8r$$

$$93) 8 + 3m + 10m$$

$$94) x - 2x$$

$$95) 10 - 9n - 8$$

$$96) r + r$$

$$97) 1 + 2n + 1 + 7n$$

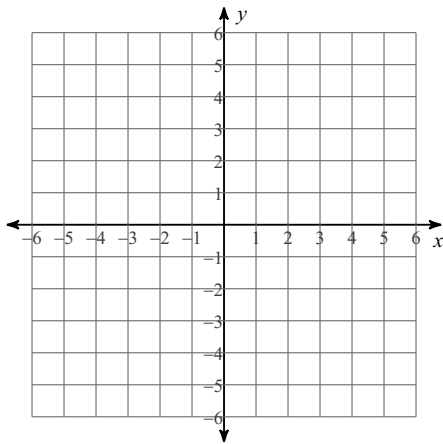
$$98) -4m + m$$

$$99) 7n + 3 - 9$$

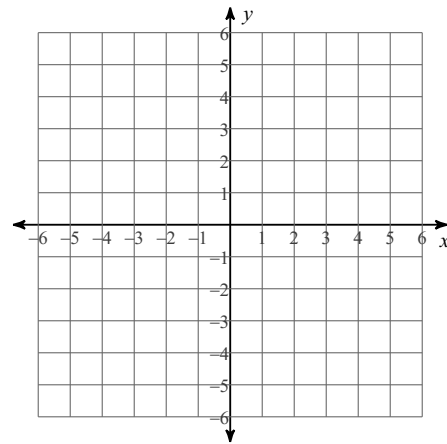
$$100) 9n + 10 + 4n$$

Sketch the graph of each line.

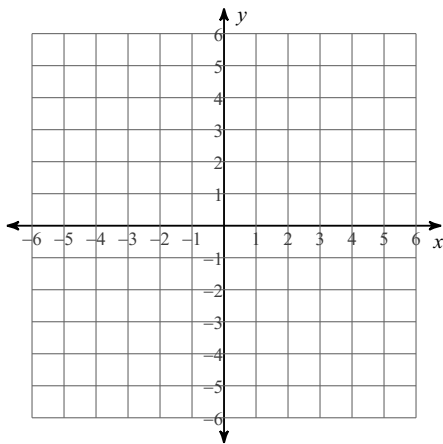
101)  $y = 2x - 3$



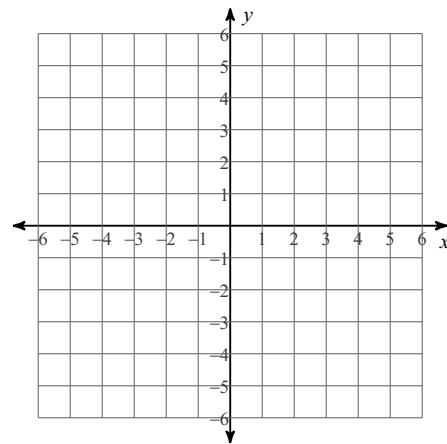
102)  $y = 2x - 1$



103)  $y = -x - 1$



104)  $y = x + 4$



Factor each completely.

105)  $v^2 - v$

106)  $m^2 - 13m + 42$

107)  $a^2 + 9a + 20$

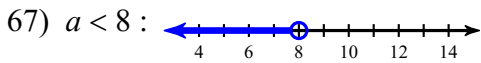
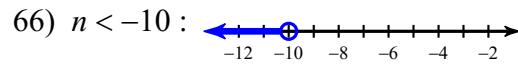
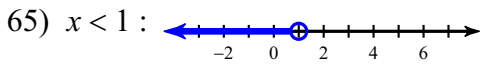
108)  $x^2 - 7x + 12$

$$109) n^2 + 10n$$

$$110) n^2 - 2n - 35$$

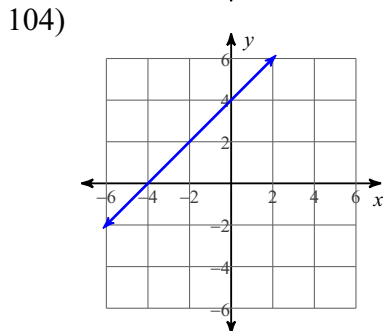
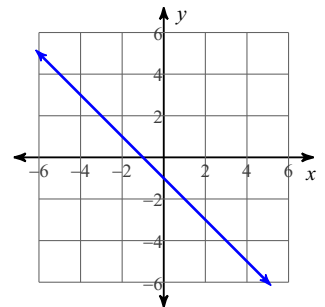
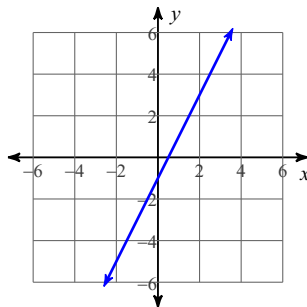
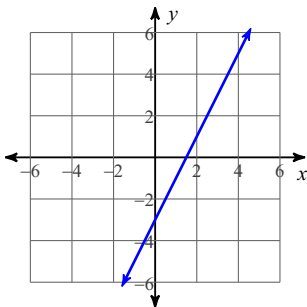
# Answers to (ID: 1)

- |               |                       |                      |                     |
|---------------|-----------------------|----------------------|---------------------|
| 1) -2         | 2) -1                 | 3) 8                 | 4) 4                |
| 5) -42        | 6) 490                | 7) 192               | 8) 140              |
| 9) 1.3        | 10) 8.7               | 11) 575              | 12) -11.25          |
| 13) 7         | 14) 6                 | 15) 25               | 16) 28              |
| 17) 21        | 18) 31                | 19) 3                | 20) 7               |
| 21) 3         | 22) 5                 | 23) 13               | 24) 35              |
| 25) 8         | 26) {4}               | 27) {-14}            | 28) {20}            |
| 29) {15}      | 30) {-48}             | 31) {7}              | 32) {15}            |
| 33) {-16}     | 34) {-13}             | 35) {4}              | 36) {-17}           |
| 37) {5}       | 38) {11}              | 39) {-10}            | 40) {152}           |
| 41) {-4}      | 42) {2}               | 43) {0}              | 44) {-3}            |
| 45) {-3}      | 46) {18}              | 47) {20}             | 48) {-16}           |
| 49) {-15}     | 50) {14}              | 51) {-15}            | 52) {16}            |
| 53) {-9}      | 54) {0}               | 55) {18}             | 56) $-10n^6m^3$     |
| 57) $-x^4y^6$ | 58) $18x^8y^7$        | 59) $32u^5v^{20}$    | 60) $-243v^5$       |
| 61) $81a^4$   | 62) $-\frac{3b^5}{2}$ | 63) $-\frac{1}{y^4}$ | 64) $-\frac{3y}{5}$ |



68)  $-\frac{8}{9}$       69) -4

- |                        |                        |                              |
|------------------------|------------------------|------------------------------|
| 70) $-\frac{1}{20}$    | 71) $4a^3 - 8a^2 + 7a$ | 72) $-8a^4 - 6a^3 + 11a + 8$ |
| 73) $10k^4 + 7k^2 - 5$ | 74) $10a^2 + 17a + 3$  | 75) $8n^2 + 10n - 3$         |
| 77) $2\sqrt{6}$        | 78) $8\sqrt{7}$        | 79) $4\sqrt{2}$              |
| 81) 82.2%              | 82) 76.3               | 83) {7.5}                    |
| 85) {6}                | 86) {4.5}              | 87) {5.71}                   |
| 89) $-16b - 3$         | 90) $9a - 3$           | 91) $k$                      |
| 93) $8 + 13m$          | 94) $-x$               | 95) $2 - 9n$                 |
| 97) $2 + 9n$           | 98) $-3m$              | 99) $7n - 6$                 |
| 101)                   | 102)                   | 103)                         |
| 76) $10a^2 + 10a - 20$ | 80) 10.3               | 84) {2.86}                   |
| 88) $3 - 10m$          | 92) $8 - 3r$           | 96) $2r$                     |
| 100) $13n + 10$        |                        |                              |



105)  $v(v - 1)$

106)  $(m - 6)(m - 7)$

- 107)  $(a + 5)(a + 4)$       108)  $(x - 4)(x - 3)$       109)  $n(n + 10)$       110)  $(n + 5)(n - 7)$