

# Summer Math Problems for Adv Math

Factor completely

①  $15a^2b - 10ab^2$

②  $16x^2y^3 + 24xy^2$

③  $c^2 - 49$

④  $x^2 + 6x + 8$

⑤  $x^2 - 3x - 10$

⑥  $t^2 - 81$

⑦  $5x^2 - 20$

⑧  $2x^2 - 16x + 32$

⑨  $6x^2 - 11x - 2$

⑩  $16n^2 - 169$

⑪  $n^3 + 3n^2 - 54n$

⑫  $4a^2 + a - 3$

⑬  $x^2 - 8x + 16$

⑭  $x^3 - 25x$

⑮  $3x^2 - 300$

⑯  $3x^2 + 9x - 84$

Solve for x

$$(17) \quad \frac{3x}{8} = \frac{11}{4}$$

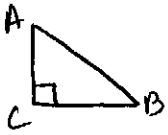
$$(18) \quad \frac{3}{4} - \frac{x}{2} = \frac{4}{5}$$

$$(19) \quad -6 = \frac{4x}{7} + 2$$

$$(20) \quad \frac{5x}{6} + \frac{3}{8} = \frac{2}{3}$$

$$(21) \quad -\frac{8x}{5} + 5 = -\frac{39}{5}$$

Use the pythagorean theorem to find the missing side of the right triangle



$$(22) \quad a = 5 \quad b = 12$$

$$(23) \quad a = 8 \quad c = 17$$

$$(24) \quad c = 12 \quad b = 4$$

$$(25) \quad a = 7 \quad b = 3$$

$$(26) \quad b = 6 \quad c = 9$$

Solve using the Quadratic Formula

$$(27) \quad x^2 - 9x + 14 = 0$$

$$(28) \quad 3x^2 + 8x = 3$$

$$(29) \quad x^2 + 3x + 6 = 0$$

$$(30) \quad x^2 - 7x + 4 = 0$$

Simplify

$$(31) \quad 9 + 6 \div 2 + 1$$

$$(32) \quad 5 + 3(2 - 12 \div 2)$$

$$(33) \quad 1 + 2 - 3 \cdot 4 \div 5$$

$$(34) \quad \sqrt{60}$$

$$(35) \quad \frac{6}{\sqrt{2}}$$

$$(36) \quad \frac{5}{2\sqrt{3}}$$

$$(37) \quad (x-4)^2$$

$$(38) \quad (2x+5)^2$$

# Answers for Adv Math Problems

①  $5ab(3a-2b)$

②  $8xy^2(2xy+3)$

③  $(c+7)(c-7)$

④  $(x+4)(x+2)$

⑤  $(x-5)(x+2)$

⑥  $(t+9)(t-9)$

⑦  $5(x+2)(x-2)$

⑧  $2(x-4)(x-4)$

⑨  $(6x+1)(x-2)$

⑩  $(4n+13)(4n-13)$

⑪  $n(n+9)(n-6)$

⑫  $(4a-3)(a+1)$

⑬  $(x-4)(x-4)$

⑭  $x(x+5)(x-5)$

⑮  $3(x+10)(x-10)$

⑯  $3(x+7)(x-4)$

⑰  $\frac{22}{3}$

⑱  $-\frac{1}{10}$

⑲  $-14$

⑳  $\frac{7}{20}$

㉑  $8$

㉒  $c=13$

㉓  $b=15$

㉔  $a=8\sqrt{2}$

㉕  $\sqrt{58}$

㉖  $3\sqrt{5}$

㉗  $7, 2$

㉘  $\frac{1}{3}, -3$

㉙  $\frac{-3 \pm i\sqrt{15}}{2}$

㉚  $\frac{7 \pm \sqrt{33}}{2}$

㉛  $13$

㉜  $-7$

㉝  $\frac{3}{5}$

㉞  $2\sqrt{15}$

㉟  $3\sqrt{2}$

㊱  $\frac{5\sqrt{3}}{6}$

㊲  $x^2 - 8x + 16$

㊳  $4x^2 + 20x + 25$