

099 §1.3 #51-69 odds

#51-52 Simplify the expression

$$\textcircled{1} \quad 5a + 7 + 8a + a = \boxed{14a + 7}$$

$$\textcircled{3} \quad 2(5x+1) + 2x = 2(5x) + 2(1) + 2x \\ = \boxed{10x + 2}$$

$$\textcircled{5} \quad 3 + 4(5a+3) + 4a = 3 + 4(5a) + 4(3) + 4a \\ = 3 + 20a + 12 + 4a \\ = \boxed{24a + 15}$$

$$\textcircled{7} \quad 5x + 3(x+2) + 7 = 5x + 3x + 6 + 7 = \boxed{8x + 13}$$

$$\textcircled{9} \quad 5(x+2y) + 4(3x+y) = 5x + 10y + 12x + 4y \\ = \boxed{17x + 14y}$$

$$\textcircled{11} \quad 5b + 3(4b+a) + 6a = 5b + 12b + 3a + 6a \\ = \boxed{17b + 9a}$$

$$\textcircled{13} \quad 3(5x+4) - x = 15x + 12 - x = \boxed{14x + 12}$$

$$\textcircled{15} \quad 6 - 7(3-m) = 6 - 21 + 7m = \boxed{7m - 15}$$

099 $5 \cdot 1.3 \neq 5 \cdot 17 - 69$

$$\begin{aligned} (17) \quad 7 - 2(3x-1) + 4x &= 7 - 6x + 2 + 4x \\ &= \boxed{-2x + 9} \end{aligned}$$

$$\begin{aligned} (19) \quad 5(3y+1) - (8y-5) &= 15y + 5 - 8y + 5 \\ &= \boxed{7y + 10} \end{aligned}$$

$$(21) \quad 4(2-6x) - (3-4x) = 8 - 24x - 3 + 4x = \boxed{-20x + 5}$$

$$\begin{aligned} (23) \quad 10 - 4(2x+1) - (3x-4) &= 10 - 8x - 4 - 3x + 4 \\ &= \boxed{-11x + 10} \end{aligned}$$

$$\begin{aligned} (25) \quad 3x - 5(x-3) - 2(1-3x) &= 3x - 5x + 15 - 2 + 6x \\ &= \boxed{4x + 13} \end{aligned}$$

$$(5 \times 10^{-2})(1 \times 10^4) = 5 \times 10^2 = 500$$

$$\begin{aligned} (27) \quad .06x + .05(10,000 - x) &= .06x + 500 - .05x \\ &= \boxed{.01x + 500} \end{aligned}$$

$$\begin{aligned} (29) \quad .12x + .1(15,000 - x) &= .12x + 1500 - .1x \\ &= \boxed{.02x + 1500} \end{aligned}$$

$$(31) \quad -(a+1) - 4a = -a - 1 - 4a = \boxed{-5a - 1}$$

099 §1.3 #5 33-69

$$\textcircled{33} (x-3)(x-2) + 2 = x^2 - 2x - 3x + 6 + 2$$
$$= \boxed{x^2 - 5x + 8}$$

$$\textcircled{35} (2x-3)(4x+3) + 4 = 8x^2 + 6x - 12x - 9$$
$$= \boxed{8x^2 - 6x - 9}$$

$$\textcircled{37} (x+4)(x-3) + (-5)(2) = x^2 - 3x + 4x - 12 - 10$$
$$= \boxed{x^2 + x - 22}$$

$$\textcircled{39} (2x-3)(4x+3) + 4 = 8x^2 + 6x - 12x - 9 + 4$$
$$= \boxed{8x^2 - 6x - 5}$$

$$\textcircled{41} 3x(x+1) - 2x(x-5) = 3x^2 + 3x - 2x^2 + 10x = \boxed{x^2 + 13x}$$

$$\textcircled{43} x(x+2) - 3 = \boxed{x^2 + 2x - 3}$$

$$\textcircled{45} a(a-3) + 6 = \boxed{a^2 - 3a + 6} =$$

$$\textcircled{47} (6x^3 - 4x^2 + 2x) + (9x^2 - 6x + 3)$$
$$= \boxed{6x^3 + 5x^2 - 4x + 3}$$

$$\textcircled{49} (a^2 - a - 1) - (-a^2 + a + 1) = a^2 - a - 1 + a^2 - a - 1$$
$$= \boxed{2a^2 - 2a - 2}$$

099 § 1.3 #s 57-69

(57) $(x^3 + 4x^2 + 4x) + (2x^2 + 8x + 8)$
 $= \boxed{x^3 + 6x^2 + 12x + 8}$

(53) Find the value of $-\frac{1}{3}x + 2$ when...

(a) ... $x=0$

$$-\frac{1}{3}(0) + 2$$

$$= \boxed{2}$$

(b) $x=3$

$$\left(-\frac{1}{3}\right)(3) + 2$$

$$= -1 + 2$$
$$= \boxed{1}$$

(c) $x=-3$

$$-\frac{1}{3}(-3) + 2$$

$$= 1 + 2$$
$$= \boxed{3}$$

In the sequel: Let $f(x) = -\frac{1}{3}x + 2$.

$$\text{Then } f(0) = -\frac{1}{3}(0) + 2 = 2$$

$$f(3) = -\frac{1}{3}(3) + 2 = -1 + 2 = 1$$

$$\text{and } f(-3) = -\frac{1}{3}(-3) + 2 = 1 + 2 = 3$$

(55) Find the value of $2x + y$ when

(a) $x=2$ & $y=-1$

$$2(2) + (-1)$$

$$= 4 - 1 = \boxed{3}$$

(b) $x=0$ & $y=3$

$$2(0) + 3$$

$$= \boxed{3}$$

(c) $x=\frac{3}{2}$ & $y=-7$

$$2\left(\frac{3}{2}\right) + (-7)$$

$$= 3 - 7$$

$$= \boxed{-4}$$

099 §1.3 #5 57-64

(57) Find the value of $y(2y+3)$ when

(a) $y = 4$

$$4(2(4)+3)$$

$$= 4(8+3)$$

$$= 4(11)$$

$$= \boxed{44}$$

(b) $y = -\frac{11}{2}$

$$-\frac{11}{2}(2(-\frac{11}{2})+3)$$

$$= -\frac{11}{2}(-11+3)$$

$$= -\frac{11}{2}(-8)$$

$$= -11(-4)$$

$$= \boxed{44}$$

(59) Find the value of $0.06x + 0.07y$ when
 $x = 7,000$ & $y = 8,000$

$$.06(7000) + .07(8000)$$

$$= 420 + 560 = \boxed{980}$$

(61) Find the value of $.05x + .1y$ when

$x = 10$ & $y = 12$

$$.05(10) + .1(12) = .5 + 1.2 = \boxed{1.7}$$

099 § 13 #s 63-69

63 Find the value of $b^2 - 4ac$, when

(a) $a=3, b=-2, c=4$

$$b^2 - 4ac = (-2)^2 - 4(3)(4) \\ = 4 - 48 = \boxed{-44}$$

(b) $a=1, b=-6, c=9$

$$ax^2 + bx + c \\ 1x^2 - 6x + 9 = (x-3)^2$$

$$b^2 - 4ac = (-6)^2 - 4(1)(9) \\ = 36 - 36 = \boxed{0}$$

Square of a binomial, when $b^2 - 4ac = 0$!

(c) $a=1, b=-3, c=-28$

$$b^2 - 4ac = (-3)^2 - 4(1)(-28) = 9 + 112 = \boxed{121}$$

(d) $a=.1, b=-27, c=1700$

$$b^2 - 4ac = (-27)^2 - 4(.1)(1700) = 729 - 680 = \boxed{49}$$

→ $x^2 - 3x - 28$ factors! why?

→ $.1x^2 - 27x + 1700$ factors! why?

#s 65-68 Simplify w/ a calculator.

65 $-500 + 27(100) - .1(100)^2 = \boxed{3200}$

67 $-.05(130)^2 + 9.5(130) - 200 = \boxed{190}$

099 § 1,3 #69

(69)

Katja	4:18:44
Heather	4:22:14
Dolly	4:24:32
Amy	4:24:42
Lori	4:25:57

The above are times for a race.

Find the difference in times between ---

(a) Katja and Amy

~~$$\begin{array}{r}
 23 \quad 102 \\
 4:24:42 \\
 - 4:18:44 \\
 \hline
 5:58
 \end{array}$$~~

Katja & Heather

$$\begin{array}{r}
 21 \quad 74 \\
 4:22:14 \\
 - 4:18:44 \\
 \hline
 0:3:30
 \end{array}$$

3 1/2 min

(b) Dolly & Amy

$$\begin{array}{r}
 4:24:32 \\
 - 4:24:42 \\
 \hline
 0:0:10
 \end{array}$$

10 secs

(c) Katja & Lori

$$\begin{array}{r}
 4:25:57 \\
 4:18:44 \\
 \hline
 0:07:13
 \end{array}$$

7 min, 13 sec