SOLUTIONS

① $3x + 2 = 17$
$3x = 15$
$x = 5$ (C)

② $10 \cdot 10 \cdot 10 = 1000\ ft^3$
$1000 \div 10 = 100$ (B)

③ $\frac{12}{16} = \frac{3}{4} = 0.75$ (A)

④ $\frac{9z^9}{x^{44}y^{16}}$ (C)

⑤ $m = \frac{1920-8}{42-2} = \frac{1912}{40} = \frac{239}{5}$ (C)

⑥ $-2x^3 + x^2 - x - 6$ (C)

⑦ $C = \frac{5}{9}(50-32)$
$= \frac{5}{9}(18)$
$= 10$ (C)

⑧ $\sqrt{1372} = \sqrt{2^2 \cdot 7^3} = 2 \cdot 7\sqrt{7}$
$= 14\sqrt{7}$ (C)

⑨ $-3x + 7 < -8$
$-3x < -15$
$x > 5$ (C)

⑩ $2x - 18 = -22$
$2x = -4$
$x = -2$
$2(-2)^3 - 25(-2) - 4$
$= 30$ (D)

⑪ $7s$ = # of swamps
$7s + 4s = 132$
$11s = 132$
$s = 12$
$7(12) = 84$ (D)

⑫ $y = -3x + 15$
$7x + 2(-3x + 15) = 34$
$7x - 6x + 30 = 34$
$x = 4$
$y = -3(4) + 15$
$= 3$
$x - y = 4 - 3 = 1$ (B)

⑬ $404x^2 + 303x + 48x + 36$
$404x^2 + 351x + 36$ (D)

⑭ Horton will reach the bottom in $\frac{260}{10} = 26$ seconds. Vlad much reach Horton in $26 - 10 =$ 16 seconds. $\frac{260}{16} = 16.25$ seconds. (C)

⑮ $A_{pool} = (x-1)(x-3)$
$= x^2 - 4x + 3$
$A_{whole} = (x+3)(x+1)$
$= x^2 + 4x + 3$
$A_{sidewalk} = (x^2+4x+3) - (x^2-4x+3)$
$= 8x = 32$
$x = 4$ (B)

SOLUTIONS

(16) $\frac{(.15)(2)+(.3)(3)+(0)(5)}{5+2+3}$

$\frac{.3+.9}{10} = \frac{1.2}{10} = \frac{12}{100} = 12\%$

(B)

(17) H = Horton's height

H-6 = morton's height

4H = mt. Mool's height

$H-6 = 4H-30$

$24 = 3H$

$8 = H$ (B)

(18) $-3x+1 < 4$ and $x+3 > 4$

$-3x < 3$ $\quad x > 1$

$x > -1 \cap x > 1$

$\Rightarrow x > 1$ (C)

(19) $4x-3y = -3$

$6x+3y = -27$

$10x = -30$

$x = -3$

$4(-3)-3y = -3$

$-12-3y = -3$

$-3y = 9$

$y = -3$ (A)

(20) ♡ must be + or × since $a \heartsuit b = b \heartsuit a$. The next sample is the distributive property meaning ◇ is × and ♡ is +. Also ♡ is − is ♀ is ÷.

So, $1+2\times3-4\div5 = \frac{31}{5}$ (C)

(21) $\frac{3}{2}\cdot\frac{2x}{3y} = 5\cdot\frac{3}{2} \Rightarrow \frac{x}{y} = \frac{15}{2}$

$\frac{7x-9y}{y} = \frac{7x}{y} - \frac{9y}{y} = \frac{7x}{y} - 9$

$= 7\left(\frac{15}{2}\right) - 9 = \frac{105}{2} - \frac{18}{2} =$

$\frac{87}{2}$ (D)

(22) $\sqrt{(a+b)^2} = \sqrt{64}$

$a+b = 8$ (C)

(23) The mayor and Jojo will take 1 hour to reach each other. Therefore, the fly will travel 24 miles. (C)

(24) 8.4×10^{-3} (B)

(25) 55 89 144 233 377 610

11 12 13 14 15

(D)

(26) $\frac{18}{90} + \frac{7}{90} = \frac{25}{90} = \frac{5}{18}$

$5 \div 18 = 0.2\overline{7}$ (A)

(27) $125^y = (5^3)^y = (5^y)^3 =$

$(9)^3 = 729$ (D)

(28) Add the 3 equations together to get $22x+22y+22z = 22$. Therefore, $x+y+z = 1$ (C)

SOLUTIONS

(29) $f(3x) = 3x \cdot 3x \cdot 3x + 2(3x)^2$

$= 27x^3 + 18x^2$ (C)

(30) $5x - 8 = -28$

$5x = -20$

$x = -4$ (C)