ACT Practice

(Sample Test 2007/2008 worked out Answers

① $y = mx + b$

$C = 26 + 39.99$ (A) ✓

↑ Cost per balloon ↑ Starting value

② $(x-y)^2$

$(5 - (-1))^2 = (6)^2 = 36$ (K) ✓

③ Day 1 ⇒ 5
2 ⇒ 8
3 ⇒ 11
$d = 3$

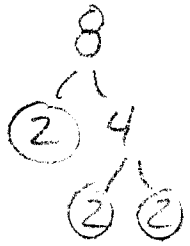
$a_N = a_1 + (N-1)d$

$= 5 + 19(3)$

$= 5 + 57 = 62$ (G) ✓

④ $(4x^2)^3 = 4^3 x^6 = 64x^6$ (J) ✓

⑤



⇒ 1, 8
2, 4 (E) ✓

⑥ $2(4x+7) - 3(2x-4)$

$8x + 14 - 6x + 12$

$2x + 26$ (H) ✓

(7) 62, 78, 83, 84, 93

↑ OUT

ASSUME 83 ⇒ −5
+0
+1
+10

$\frac{6}{4} = 1\frac{1}{2} > 83 = \boxed{84.5}$ (E) ✓

(8) $y = mx + b$

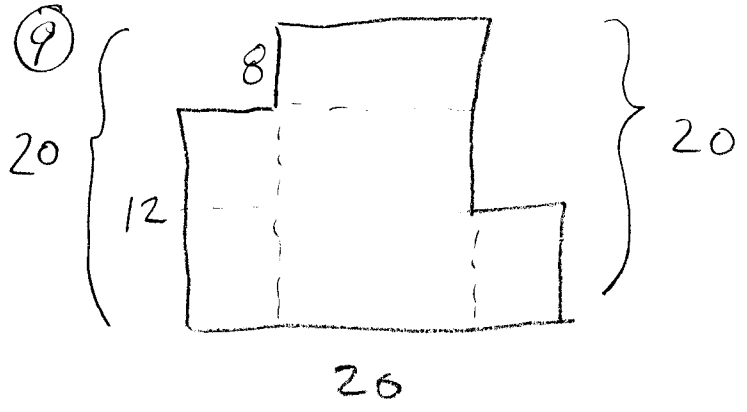
$\begin{cases} C = 25m + 120 \\ C = 35m + 60 \end{cases}$ EBS ⇒ $35m + 60 = 25m + 120$

$-25m \quad -60 \quad -25m \quad -60$

$10m = 60$

$\boxed{m = 6 \text{ MONTHS}}$ (J) ✓

(9)



$4 \cdot 20 = \boxed{80 \text{ m}}$ (B) ✓

(10) $x + y = 11$

$x - y = 5$

$2x = 16$

$x = 8 \quad \therefore y = 3 \quad \therefore xy = 3 \cdot 8 = \boxed{24}$ (J) ✓

(11) $(3x+7)^2 = \boxed{9x^2+42x+49}$ (E) ✓

$(3x+7)(3x+7)$

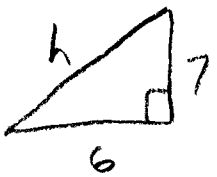
(12) $(-5,2),(6,7)$

$\frac{7-2}{6+5} = \boxed{\frac{5}{11} = m}$ (J) ✓

(13) $\frac{1}{3}k + \frac{1}{4}k = 1 \quad (\cdot 12)$

$4k + 3k = 12$

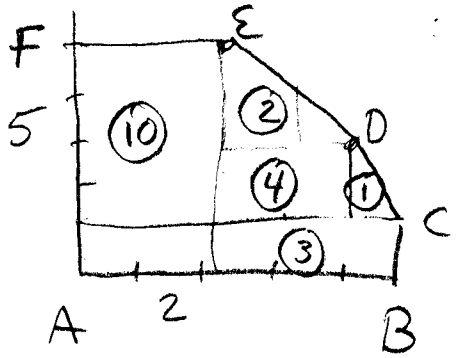
$7k = 12 \quad \therefore \boxed{k = \frac{12}{7}}$ (B) ✓

(14) 

$h^2 = 36+49$

$\boxed{h = \sqrt{85}}$ (G) ✓

(15)



$A = 10$

$A = 3$

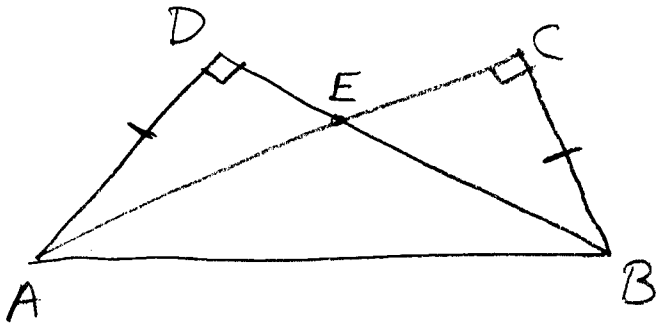
$A = 4$

$A = 2$

$A = 1$

20 UNITS^2 (C) ✓

(16)



$\therefore \triangle ADB \cong \triangle ACB$

(F) $\overline{AC} \overset{?}{\cong} \overline{BD}$ ✓

(G) $\overline{AD} \cong \overline{AE}$ NO (G) ✓

(H) $\overline{AE} \cong \overline{BE}$ ✓

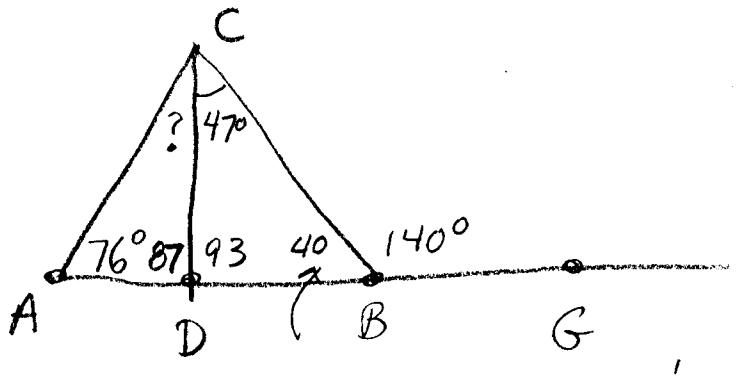
(J) $\angle DAB \cong \angle CBA$ ✓

(K) $\angle EAB \cong \angle EBA$ ✓

(17) 23% off marked Price P

$\Rightarrow \boxed{P - (.23P)}$ (A) ✓

(18)



$180 - 87 = 93$ $\quad 180 - 93 = 87$ $\quad 87 + 76 = 163$ $\quad \therefore \boxed{\angle ACD = 17^\circ}$ (H) ✓

(A) $d = rt$

$900 = 50t \quad \therefore t = \frac{900}{50} = 18 \text{ hrs}$

-3

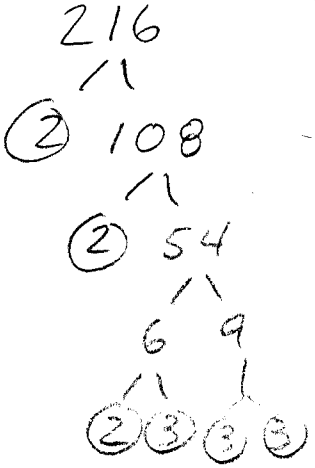
$15 \text{ hrs} = t$

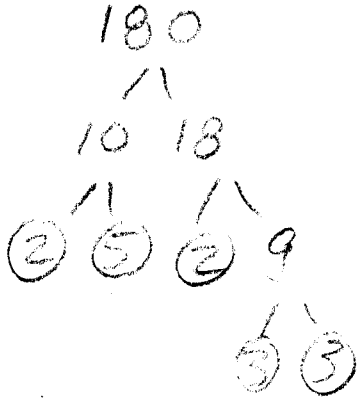
$\therefore 900 = r\,15$

$\frac{900}{15} = r$

$60 = r \quad \therefore$ MUST go 10 mph FASTER (C) ✓

(20)





$2 \cdot 2 \cdot 2 \cdot 3 \cdot 3 \cdot 3$ ✓✓ ✓✓

$2 \cdot 2 \cdot 3 \cdot 3 \cdot 5$ ✓✓ ✓✓

$\therefore 2 \cdot 2 \cdot 3 \cdot 3 = \boxed{36 \times = 6CF}$ (K) ✓

(21) Lemons: 1 6 12

.30 1.20 2.10

(.30ea) (.20ea) (<.20 each)

Buy 20 ⇒ $1 \cdot 12$ @ ⇒ 2.10

$+ 1 \cdot 6$ @ 1.20

$+ 2 \cdot 1$ @ .60

$\boxed{\$3.90}$ (B) ✓

"Buy the most you can of the least expensive"

(22) $|d-3| \leq .001$

(+) ↙ ↘ (−)

$d-3 \leq .001$

$d \leq 3.001$

$-(d-3) \leq .001$

$d-3 \geq -.001$

$d \geq 2.999$

MAX

$\therefore 2.999 \leq d \leq 3.001$

(K) ✓

(23) $5x^2 - 13x - 6$

sum $\Rightarrow -13$

prod $= -30$

$+2x \quad -15x$

$(5x^2 - 15x) + (2x - 6)$

$5x(x-3) + 2(x-3)$

$(x-3)(5x+2)$ (A) ✓

(24)

6 red
5 yellow
7 green
18 total

WANT $P(\text{red}) = \frac{3}{5}$

$\Rightarrow \frac{6+x}{18+x} = \frac{3}{5}$

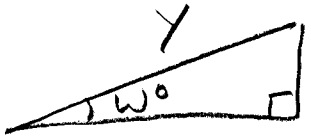
$\therefore 30 + 5x = 54 + 3x$

$-3x \qquad -3x$

$2x = 24$

$x = 12$ more red marbles (F) ✓

(25)



Rectangle

SOH CAH TOA

$\csc = \frac{H}{O}$ $\sec = \frac{H}{A}$ $\cot = \frac{A}{O}$

(A) $\cos W \stackrel{?}{=} \frac{x}{y}$ NO

(B) $\cot W \stackrel{?}{=} \frac{x}{y}$ NO

(C) $\sec W = \frac{x}{y}$ NO

(D) $\sin W = \frac{x}{y}$ yes (d) ✓

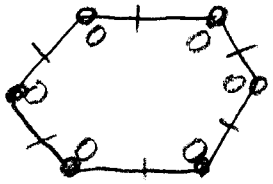
(E) $\tan W = \frac{x}{y}$ NO

(26) Slope of $y = ax + b$ > Slope of $y = cx + b$

a = slope c = slope

$\therefore$ $\boxed{a > c}$ (J) ✓

(27)



Regular hexagon

● ⇒ vertex

○ ⇒ nails

How many rubber bands to stretch a different band across every possible pair of nails.

1st ⇒ 5

2nd ⇒ 4

3rd ⇒ 3

4th ⇒ 2

5th ⇒ 1

6th ⇒ 0

$\boxed{15}$ (A) ✓

(29)

Age	<16	16-25	26-35	>35	
Number	40	76	112	52	⇒ 280 TOTAL

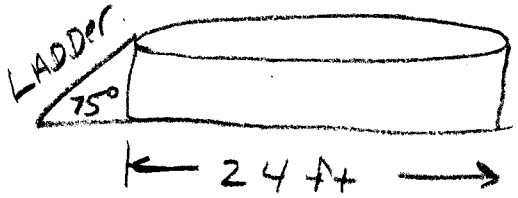
40
76
112
52

Award 60 prizes proportionally ⇒ # in 26-35?

$\frac{112}{280} \cdot \frac{60}{1} = \frac{56}{140} \cdot \frac{3}{1} = \frac{28}{70} \cdot \frac{3}{1} = \frac{14}{35} \cdot \frac{3}{1} = \frac{2}{5} \cdot \frac{3}{1} = \frac{6}{5} = 1\frac{1}{5}$

$\boxed{24}$ prizes in 26-35 age group (H) ✓

(29.) → (32)



RIGHT CYLINDER

(29) $V(h) = \pi r^2 h$ $\quad r = 12 \therefore r^2 = 144$

$V(h) = 144\pi h$

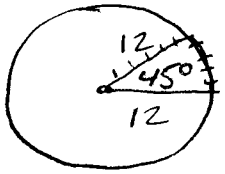
$V(5) = 144\pi(5) = 720\pi \text{ ft}^3$

$\cong 720(3.14)$

$\cong$ 2260.8 ft^3 (C) ✓

	× 5
→	2 2 0
	3.14
	2 8 8 0
	7 2 0
	2 1 6 0

(30)



$\frac{45}{360} = \frac{9}{72} = \frac{1}{8}(2\pi r)$ = length of arc

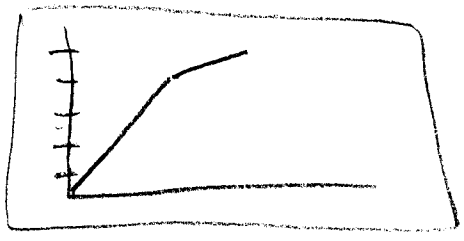
$= \frac{\pi 12}{4} = 3\pi \quad \therefore 3\pi + 12 = 3\text{ft}$

$9.42 + 12 = 21.42$

$\approx$ 22 (9) ✓

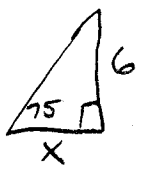
Length of zipper

(31) X gpm → 2X gpm → Fill for 12 hrs to 4 ft → X gpm → TO 5 ft



(E) ✓

(32)



$\tan 75° = \frac{6}{x} \quad \therefore x = \frac{6}{\tan 75°}$ (F) ✓