Fractions, Percent, Ratio. Form A

1. What is the least common denominator for the fractions $\frac{3}{2}, \frac{3}{8}, \frac{5}{6}$?

(A) 96
(B) 16
(C) 48
(D) 8
(E) 24

$\frac{3}{2} \rightarrow 2, 4, 6, 8, \ldots (24)$

$\frac{3}{8} \rightarrow 8, 16, (24), 32, \ldots$

$\frac{5}{6} \rightarrow 6, 12, 18, (24), 30, \ldots$

2. What is the least common denominator for $\frac{3}{5}, \frac{3}{10}, \frac{5}{3}, 5$?

(A) 30
(B) 60
(C) 5
(D) 1
(E) 3

$\frac{3}{5} \rightarrow 5, 10, 15, 20, 25, (30), \ldots$

$\frac{3}{10} \rightarrow 10, 20, (30), \ldots$

$\frac{5}{3} \rightarrow 3, 6, 9, \ldots (30)$

3. In what order should $\frac{1}{2}, \frac{2}{3}, \frac{1}{4}, \frac{20}{3}, \frac{5}{6}$ be listed by increasing size?

↳ largest so answer is B or D

$\frac{5}{6} > \frac{1}{2}$ so answer is D

(A) $\frac{1}{2}, \frac{2}{3}, \frac{1}{4}, \frac{20}{3}, \frac{5}{6}$
(B) $\frac{1}{4}, \frac{5}{6}, \frac{2}{3}, (\frac{1}{2}), \frac{20}{3}$
(C) $\frac{20}{3}, \frac{1}{2}, \frac{2}{3}, \frac{5}{6}, \frac{1}{4}$
(D) $\frac{1}{4}, \frac{1}{2}, \frac{2}{3}, (\frac{5}{6}), \frac{20}{3}$
(E) $\frac{1}{4}, \frac{1}{2}, \frac{2}{3}, \frac{20}{3}, \frac{5}{6}$

4. The fraction $\frac{2}{5}$ is equal to?

(A) 0.4%
(B) 40%
(C) 25%
(D) 10%

$\frac{2}{5} \times \frac{20}{20} = \frac{40}{100} = 40\%$

(E) 0.25%

5. What is 28% equal to?

$28\% = \frac{28}{100} = \frac{14}{50} = \frac{7}{25}$

(A) $\frac{28}{50}$

(B) $\frac{7}{50}$

(C) $\frac{7}{25}$

(D) 28

(E) $\frac{7}{28}$

6. Which of the following is a rational number? → Fraction of two integers

(A) $\frac{\pi}{3}$ not an integer

(B) $\frac{\sqrt{5}}{2}$ not an integer

(C) $\frac{\sqrt{49}}{\pi}$

(D) $\sqrt{\frac{36}{25}} = \frac{6}{5}$ ✓

(E) $\sqrt{7}$ not integer

7. What rational number is between $\frac{1}{2}$ and 1?

(A) $\frac{7}{8}$

(B) $\frac{1}{4} < \frac{1}{2}$

(C) $\frac{1}{11} < \frac{1}{2}$

(D) $\frac{4}{9} < \frac{1}{2}$

→

(E) $\frac{3}{8} < \frac{1}{2}$

8. Which repeating decimal below is equivalent to the fraction $\frac{2}{7}$?

Use calculator

$2 \div 7 = 0.\overline{285714}$ 285714.....

(A) $0.\overline{286}$

(B) $0.\overline{285714}$

(C $0.\overline{2857}$

(D $0.285\overline{714}$

(E) $0.\overline{29}$

9. What is the 322nd digit after the decimal point in the repeating decimal $0.\overline{1357}$?

4 digits

$322 \div 4$ digits $= 80.5$

This means we have 80 4-digit sets plus 0.5 or $\frac{1}{2}$ of a set

So $0.5 * 4$ digits $= 2$ so $0.\overline{1357}$ ① ② ③ ④

(A) 1

(B) 3

(C 5

(D7

(E) 0

10. The decimal 3.75 is equivalent to?

$0.75 = \frac{75}{100} = \frac{3}{4}$

So 3.75

$3\frac{3}{4}$

(A) $3\frac{3}{4}$

(B) $3\frac{1}{4}$

(C) $3\frac{7}{10}$

(D) $\frac{14.99}{4}$

(E) $3\frac{1}{8}$

11. A pair of pants is priced at \$70. If you get a discount of 25% and then use a \$5 coupon, what is the final cost of the pants?

means what you pay is 75% or 0.75

Price after discount $\$70 * 0.75 = 52.5$

Apply \$5 coupon

final cost $= 52.5 - 5 = \$47.5$

(A) \$50

(B) \$17.5

(C) $12.5
(D) $52.5
(E) $47.5

12. A soccer jersey is priced at $89. If you get a 30% sale discount and then a 10% loyal customer discount, what is the final cost of the jersey?

→ you pay 70% or 0.70

(A) $53.4
(B) $62.3
(C) $56.07
(D) $52.5
(E) $35.6

Sale price = $89 * 0.7 = $62.3
Apply loyal customer discount to sale price
Final cost = 62.3 * 0.9 = $56.07

13. A car is priced at $35,000. If the dealer offers a 5% dealer discount, and then a $2,000 college student discount. What are the total savings?

→ you pay 95% or 0.95 so savings is 5% or 0.05

(A) $5,000
(B) $3,500
(C) $4,000
(D) $3,750
(E) $2,500

Savings from dealer discount
$35,000 * 0.05 = $1,750
Add $2,000 college discount
Total savings = 1,750 + 2,000 = $3,750

14. Kenzi bought a pair of pants at a discounted price of $30. The original price of the pants was $40. What percent discount did Kenzi get?

(A) 15%
(B) 30%
(C) 25%
(D) 75%
(E) 33%

$\frac{30}{40} = 0.75$ or 75% of original price is what was paid
so savings = 25%

15. A car costs the dealer $33,000. If he wants to sell it at a 7% markup, what is the sale price of the car?

(A) $35,999
(B) $35,500
(C) $35,000
(D) $35,310
(E) $35,750

Price = $33,000 * 1.07
= $35,310

note
Markup = 7% so final price is 100% + 7% = 107% or 1.07

16. Manga bought $15 worth of fruit and $30 worth of clothes from a Super Market. If fruits are taxed at 3%, and clothes are taxed at 11%, what did Manga pay in total?

Fruit: $15 * 1.03 = $15.45
Clothes: $30 * 1.11 = $33.3
Total: 15.45 + 33.3 = $48.75

→

(A) $53.4
(B) $51.3
(C) $48.75
(D) $48.90
(E) $49.99

17. Jana orders a $29 entre from a restaurant. If the tax is 11%, and Jana pays a 20% tip on the subtotal, how much did Jana pay rounded to the nearest penny?

(A) $38.63
(B) $38.28
(C) $40
(D) $42.90
(E) $37.25

After Tax
$29 * 1.11 = $32.19 (Subtotal)

Tip on subtotal
$32.19 * 1.2 = 38.63

After tip and Tax
~~38.63~~ $38.63

18. On a certain state map, one inch represents 15 miles. How many miles do 3.75 inches represent?

(A) 4
(B) 18.75
(C) 20
(D) 62.75
(E) 56.25

$\frac{\text{inch}}{\text{mile}} \Rightarrow \frac{1}{15} = \frac{3.75}{x}$

$x = (15)(3.75) = 56.25$ miles

19. The cost of gold is proportional to its weight. A two ounce of gold is $5,000. What is the cost of 3.5 ounces gold bar?

(A) $8,500
(B) $8,000
(C) $9,000
(D) $8,750
(E) $9,500

$\frac{\$}{\text{weight}} \Rightarrow \frac{\$5,000}{2 \text{ ounces}} = \frac{x}{3.5}$

$x = \frac{(3.5)(5,000)}{2} = \$8,750$

20. A bag contains 3 yellow marbles, 5 red marbles, and 9 blue marbles. What is the ratio of yellow marbles to blue marbles?

(A) 3:1
(B) 1:3
(C) 3:14
(D) 5:3
(E) 9:3

yellow : blue
3 : 9
= 1 : 3

21.Sarah made $250 when she worked for 20 hours. How much will she make if she works 31 hours?

(A) $350.5
(B) $387.5
(C) $400
(D) $500.05
(E) $300

$\frac{\$}{hours} \Rightarrow \frac{250}{20} = \frac{x}{31}$

$x = \frac{(31)(250)}{20} = \$387.5$

Answers

1. E
2. A
3. D
4. B
5. C
6. D
7. A
8. B
9. B
10. A
11. E
12. C
13. D
14. C
15. D
16. C
17. A
18. E
19. D
20. B
21. B