SOLUTIONS TO PRACTICE TESTS

PRACTICE TEST A

Section 1

1. (B) $\frac{1}{5}x = 8$

$x = 40$

$\frac{1}{4}(40) = 10$

2. (E) Multiples of 3 are 3 apart x is 3 below $x + 3$. $x + 6$ is 3 above $x + 3$. $6x + 18 = 6(x + 3)$, $2x + 6 = 2(x + 3)$. $3x + 5$ does not have a factor of 3, nor can it be shown to differ front $x + 3$ by a multiple of 3.

3. (C) Angle $C = 40°$ (Congruent angles.)

Angle $BAC = 100°$ (Sum of the angles in a triangle is 180°.)

Angle $x = 100°$ (Vertical angles are congruent.)

4. (E)

$\frac{2}{5} \cdot \frac{3}{2} = \frac{3}{5}$

$\frac{1}{2} - \frac{1}{10} = \frac{10-2}{20} = \frac{8}{20} = \frac{2}{5}$

$\frac{3}{5} + \frac{2}{5} = 1$

5. (C) Basic toll $1.00.

Extra toll $2.25, which is 3($.75).

Therefore, the car holds a driver and 3 extra passengers, for a total of 4 persons.

6. (C) Divide by y^2 : $y = 2$.

7. (C) $x = y + 1$

Using the largest negative integers will give the smallest product. Let $y = –2$, $x = –1$, then $xy = 2$.

8. (C) Side of square = 12 = diameter of semicircle.

Remaining 2 sides of triangle add up to 16.

Perimeter of semicircle = $\frac{1}{2}\pi d = \frac{1}{2} \cdot \pi \cdot 12 = 6\pi$

2 sides of square in perimeter = 24

Total perimeter of park = $16 + 6\pi + 24 = 40 + 6\pi$

9. (A) $80\% = \frac{4}{5}$ $\frac{4}{5} \cdot 45 = 36$

$\frac{1}{3} \cdot 45 = 15$

Used in October = 36 – 15 = 21

10. (E) Angle $AOD = 50°$

Angle $COB = 50°$

Arc $CB = 50°$

Angle CAB is an inscribed angle = 25°

11. (B)

$\frac{a}{\cancel{b}} \cdot \frac{\cancel{b}}{\cancel{c}} \cdot \frac{\cancel{c}}{\cancel{d}} \cdot \frac{\cancel{d}}{e} \cdot x = 1$

$\frac{a}{e} \cdot x = 1$

$x = \frac{e}{a}$

12. (B)

$\frac{m+n+p}{3} = q$

$m + n + p = 3q$

$x + y = z$

$m + n + p + x + y = 3q + z$

13. (C) Side of square = 2

If $BE = 2$, $EA = 1$, then by the Pythagorean theorem, BA and AC each equal $\sqrt{5}$.

Perimeter of triangle $ABC = 2 + 2\sqrt{5}$.

14. (A) Multiply every term by a.

$\frac{1}{2a-2}$

15. (C) There are 30° in each of the 12 even spaces between numbers on the clock. At 3:30, the minute hand points to 6 and the hour hand is halfway between 3 and 4. The angle between the hands is $2\frac{1}{2}(30^\circ) = 75^\circ$.

16. (A) $320 is 125% of his former salary.

$320 = 1.25x$

$32000 = 125x$

$\$256 = x$

17. (A) Area of each square = $\frac{1}{5}\cdot 125 = 25$

Side of each square = 5

Perimeter is made up of 12 sides. 12(5) = 60

18. (C) $\frac{1}{2}\cdot\frac{3}{5} = \frac{3}{10} = 30\%$

19. (D) Circumference is 5 times arc.

$5(2\pi) = 10\pi = \pi d$

$d = 10 \qquad r = 5$

20. (D) The sum of any two sides of a triangle must be greater than the third side. Therefore, x must be less than 7 ($4 + 3 > x$); however, x must be greater than 1, as $3 + x > 4$.

21. (E) x can be negative as $(-2)^2 = 4$, which is less than 5.

22. (D) The two children's tickets equal one adult ticket. Mr. Prince pays the equivalent of 3 adult tickets.

$3a = 12.60$

$a = 4.20$

Child's ticket = $\frac{1}{2}(4.20) = \$2.10$

23. (A)

$\binom{3}{4\quad 5} = 12 - 5 = 7$

$\binom{5}{6\quad 7} = 30 - 7 = 23$

$7 + 23 = 30$

24. (C) If the linear ratio is 1:1.5, then the area ratio is $(1)^2 : (1.5)^2$ or 1:2.25. The increase is 1.25 or 125% of the original area.

25. (B) $\frac{3}{4}$ of $\frac{1}{3}$ will go on to college next year.
$\frac{3}{4}\cdot\frac{1}{3} = \frac{1}{4} = 25\%$.

Section 2

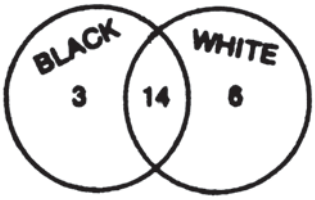
1. $\sqrt{4^2 + 9} = \sqrt{25} = 5$ **(answer)**

2. The number must be an even number, as there is no remainder when divided by 2. If division by 4 does give a remainder, it must be 2, since even numbers are 2 apart. 2 **(answer)**

3. $\left(\sqrt{8}\right)^2 = 8$ **(answer)**

4. $\frac{y}{x} = \frac{\frac{2}{5}}{\frac{5}{2}} = \frac{2}{5}\cdot\frac{2}{5} = \frac{4}{25}$ **(answer)**

5. Illustrate the given facts as follows.

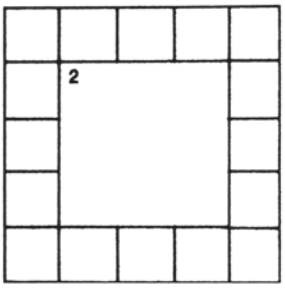


This accounts for 23 students, leaving 7. **(answer)**

6. $4 \square 2 = 4 \cdot 2 + (4 - 2) = 8 + 2 = 10$ **(answer)**

7. It is possible for the first four to be blue, but then the next two must be red. Of course it is possible that two red socks could be drawn earlier, but with 6 we are *assured* of a pair of red socks. 6 **(answer)**

8. 16 **(answer)**



9. $3x = 12$
$x = 4$
$3x + 1 = 13$ **(answer)**

10. $(a+b)^2 = a^2 + 2ab + b^2$
$a^2 + b^2 = 30$
$2ab = 20$
$a^2 + 2ab + b^2 = 50$ **(answer)**