Alberta Pure Math 30 KEY, 2009 Edition.

Page 22, question 10
The question reads, "The graph of $y = f(x)$ is transformed by reflecting it in the y-axis and then translating it right by 2 units."

It should read, "The graph of $y = f(x)$ is transformed by reflecting it in the ***x*-axis** and then translating it right by 2 units."

In the corresponding solution on page 88, the word "y-axis" should likewise be changed to "x-axis"

Page 111, Answers table
The answer for question 13 is C, not D.
The answer for question 18 is D, not C.

Page 50, question 18
Alternative B should read: $\theta \neq \pi + \frac{n\pi}{2}, n \in I$

Alternative C should read: $\theta \neq \frac{\pi}{2} + n\pi, n \in I$

The corresponding solution on page 115 should read as follows:

The domain of $y = \tan\theta$ is $\theta \neq \frac{\pi}{2} + n\pi, n \in I$. The graph of $y = \tan\left(\theta - \frac{\pi}{2}\right)$ can be obtained by translating the graph of $y = \tan\theta$, $\frac{\pi}{2}$ units to the right. Therefore, the domain of

$y = \tan\left(\theta - \frac{\pi}{2}\right)$ is

$\theta \neq \left(\frac{\pi}{2} + n\pi, n \in I\right) + \frac{\pi}{2}$

$\theta \neq \pi + n\pi, n \in I$

or

$\theta \neq n\pi, n \in I$

The correct answer is therefore D, not C.

Page 50, question 22

The question should read, "The general solution of $\sin 3x = -\frac{1}{2}$ is"

The corresponding solution on page 116 should read as follows:

$$\sin 3x = -\frac{1}{2}$$

Recall that if $\sin x = -\frac{1}{2}$ then the general solution to this equation is $x = \frac{7\pi}{6} + 2n\pi, n \in I$ rad or $x = \frac{11\pi}{6} + 2n\pi, n \in I$ rad. However, if $\sin 3x = -\frac{1}{2}$ then the general solution to this equation can be found as follows:

$$3x = \frac{7\pi}{6} + 2n\pi, n \in I \text{ rad}$$

$$x = \frac{7\pi}{18} + \frac{2n\pi}{3}, n \in I \text{ rad} \quad \text{(dividing each term by 3)}$$

or

$$3x = \frac{11\pi}{6} + 2n\pi, n \in I \text{ rad}$$

$$x = \frac{11\pi}{18} + \frac{2n\pi}{3}, n \in I \text{ rad} \quad \text{(dividing each term by 3)}$$

The answer is B.

Page 51, Question 25

Alternative C should be $-\cos^2 A$.

The final equation in the corresponding equation on page 117 should read as follows:

$$\frac{\cot^2 A - \csc^2 A}{1 + \tan^2 A} = \frac{-1}{\sec^2 A} = -\cos^2 A$$

Page 69, question 6

The question reads, "A bag contains 5 red marbles and 8 black marbles. 2 marbles are drawn without replacement from the bag. The probability of drawing at least 1 red marble is"

A. $\frac{15}{78}$

B. $\frac{5}{78}$

C. $\frac{25}{156}$

D. $\frac{5}{156}$

It should read, "A bag contains 5 red marbles and 8 black marbles. 2 marbles are drawn one after the other without replacement from the bag. The probability of drawing at least 1 red marble is"

A. $\frac{25}{39}$

B. $\frac{100}{169}$

C. $\frac{15}{78}$

D. $\frac{5}{156}$

In the corresponding solution on page 134, the correct answer is A. The solution should read:

There are two cases to consider:

Case One: one red marble and one black marble.

Two marbles can be selected from the 13 marbles (5 red marbles + 8 black marbles) in ${}_{13}C_2$ ways. Also, 1 red marble can be selected from the 5 red marbles in ${}_5C_1$ ways and 1 black marble can be selected from the 8 black marbles in ${}_8C_1$ ways. Thus, the probability of selecting one red marble and one black marble from the 13 marbles in given by $\frac{{}_5C_1 \times {}_8C_1}{{}_{13}C_2}$.

Case Two: two red marbles.

Two marbles can be selected from the 13 marbles in ${}_{13}C_2$ ways. Also, 2 red marbles can be selected from the 5 red marbles in ${}_5C_2$ ways. Thus, the probability selecting two red marbles from the 13 marbles is given by $\frac{{}_5C_2}{{}_{13}C_2}$.

Therefore, the probability of drawing at least 1 red marble from the bag is given by

$$\frac{{}_5C_1 \times {}_8C_1}{{}_{13}C_2} + \frac{{}_5C_2}{{}_{13}C_2} = \frac{40}{78} + \frac{10}{78} = \frac{50}{78} = \frac{25}{39}.$$

Alternative Solution:

This problem can also be solved by considering the following possibilities: a red marble followed by a black marble or a black marble followed by a red marble or a red marble followed by a red marble. Keep in mind that when one marble is removed from the bag and not replaced only 12 marbles remain in the bag. Thus, the probability of drawing at least 1 red marble from the bag can be determined by evaluating $\frac{5}{13} \times \frac{8}{12} \times \frac{8}{13} \times \frac{5}{12} + \frac{5}{13} \times \frac{4}{12}$

$$= \frac{40}{156} + \frac{40}{156} + \frac{20}{156}$$

$$= \frac{100}{156}$$

$$= \frac{25}{39}$$