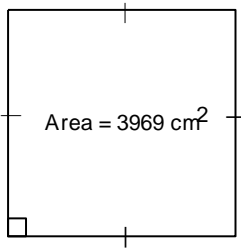


## midterm review unit 3-4

### Multiple Choice

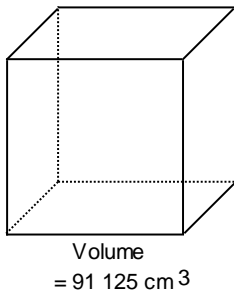
Identify the choice that best completes the statement or answers the question.

- \_\_\_ 1. Write the prime factorization of 630.  
a.  $2 \cdot 5 \cdot 7 \cdot 9$       b.  $2 \cdot 5 \cdot 63$       c.  $2 \cdot 3^2 \cdot 5 \cdot 7$       d.  $2 \cdot 3 \cdot 5 \cdot 7$
- \_\_\_ 2. Write the prime factorization of 4116.  
a.  $2^3 \cdot 3 \cdot 7^2$       b.  $2^2 \cdot 3 \cdot 7^3$       c.  $2^2 \cdot 3 \cdot 7^2$       d.  $2 \cdot 3^2 \cdot 7^3$
- \_\_\_ 3. Determine the greatest common factor of 56 and 88.  
a. 77      b. 616      c. 7      d. 8
- \_\_\_ 4. Determine the greatest common factor of 280 and 360.  
a. 9      b. 63      c. 2520      d. 40
- \_\_\_ 5. Determine the greatest common factor of 84, 210, and 336.  
a. 14      b. 1680      c. 21      d. 42
- \_\_\_ 6. Determine the least common multiple of 10 and 22.  
a. 2      b. 55      c. 220      d. 110
- \_\_\_ 7. Determine the least common multiple of 78 and 102.  
a. 1326      b. 6      c. 2652      d. 7956
- \_\_\_ 8. A developer wants to subdivide a rectangular plot of land measuring 600 m by 750 m into congruent square lots. What is the side length of the largest possible square?  
a. 75 m      b. 30 m      c. 150 m      d. 50 m
- \_\_\_ 9. One neighbour cuts his lawn every 8 days. Another neighbour cuts her lawn every 10 days. Suppose both neighbours cut their lawns today. How many days will pass before both neighbours cut their lawns on the same day again?  
a. 80 days      b. 60 days      c. 2 days      d. 40 days
- \_\_\_ 10. Determine the square root of 250 000.  
a. 100      b. 63      c. 500      d. 200
- \_\_\_ 11. Determine the cube root of 42 875.  
a. 1225      b. 4763.9      c. 207.1      d. 35
- \_\_\_ 12. A cube has volume  $15\,625\text{ cm}^3$ . What is the surface area of the cube?  
a.  $132\,893.3\text{ cm}^2$       b.  $3750\text{ cm}^2$       c.  $25\text{ cm}^2$       d.  $10\,416.7\text{ cm}^2$
- \_\_\_ 13. Determine the side length of this square.



- a. 63 cm                      b. 15.83 cm                      c. 992.25 cm                      d. 441 cm

\_\_\_ 14. Determine the edge length of this cube.



- a. 301.87 cm                      b. 45 cm                      c. 6.71 cm                      d. 3375 cm

\_\_\_ 15. How many perfect square whole numbers are between 5000 and 6000?

- a. 6                      b. 8                      c. 1                      d. 7

\_\_\_ 16. Identify the index of  $\sqrt[3]{2^7}$ .

- a.  $2^7$                       b. 3                      c. 7                      d. 2

\_\_\_ 17. Identify the radicand of  $\sqrt[6]{4^8}$ .

- a. 4                      b.  $4^8$                       c. 6                      d. 8

\_\_\_ 18. Evaluate  $\sqrt[4]{16}$ .

- a. 2                      b. 2.6                      c. 16                      d. 1.41

\_\_\_ 19. Evaluate  $\sqrt[3]{-64}$ .

- a. -4                      b. impossible                      c. -12.8                      d. 4

\_\_\_ 20. Evaluate  $\sqrt[3]{0.343}$ .

- a. 0.7                      b. 0.007                      c. 0.1143                      d. 0.49

\_\_\_ 21. Evaluate  $\sqrt[4]{\frac{256}{625}}$ .

- a.  $\frac{4}{5}$                       b.  $\frac{4}{25}$                       c.  $\frac{16}{25}$                       d.  $\frac{16}{5}$

\_\_\_ 22. Write an equivalent form of 9 as a cube root.

- a.  $\sqrt[3]{6561}$                       b.  $\sqrt[3]{729}$                       c.  $\sqrt[3]{9\sqrt{81}}$                       d.  $\sqrt{81}$

- \_\_\_ 23. Write an equivalent form of 0.4 as a fourth root.  
 a.  $\sqrt[4]{0.0256}$       b.  $\sqrt[4]{0.16}$       c.  $\sqrt[4]{0.256}$       d.  $\sqrt[4]{0.064}$
- \_\_\_ 24. Write an equivalent form of  $\frac{4}{9}$  as a square root.  
 a.  $\sqrt{\frac{16}{18}}$       b.  $\sqrt[3]{\frac{64}{729}}$       c.  $\sqrt{\frac{8}{81}}$       d.  $\sqrt{\frac{16}{81}}$
- \_\_\_ 25. Which of these numbers is rational?  
 $\sqrt{\frac{4}{169}}, \sqrt{48}, \sqrt[3]{-16}, \sqrt{8.1}$   
 a.  $\sqrt{48}$       b.  $\sqrt{8.1}$       c.  $\sqrt[3]{-16}$       d.  $\sqrt{\frac{4}{169}}$
- \_\_\_ 26. Which of these numbers is irrational?  
 $\sqrt{48}, \sqrt[3]{216}, \sqrt{\frac{49}{16}}, -68$   
 a.  $-68$       b.  $\sqrt{48}$       c.  $\sqrt[3]{216}$       d.  $\sqrt{\frac{49}{16}}$
- \_\_\_ 27. Order these numbers from greatest to least:  $\sqrt[3]{99}, \sqrt{170}, \sqrt[3]{3050}, \sqrt{18}, \sqrt[3]{51}$   
 a.  $\sqrt{170}, \sqrt[3]{99}, \sqrt[3]{3050}, \sqrt{18}, \sqrt[3]{51}$       c.  $\sqrt[3]{3050}, \sqrt{170}, \sqrt[3]{99}, \sqrt{18}, \sqrt[3]{51}$   
 b.  $\sqrt[3]{3050}, \sqrt{18}, \sqrt[3]{51}, \sqrt{170}, \sqrt[3]{99}$       d.  $\sqrt[3]{3050}, \sqrt{170}, \sqrt{18}, \sqrt[3]{51}, \sqrt[3]{99}$
- \_\_\_ 28. Order these numbers from least to greatest:  $\sqrt[3]{75}, \sqrt{14}, \sqrt[3]{100}, \sqrt{17}, \sqrt[3]{30}$   
 a.  $\sqrt[3]{75}, \sqrt[3]{100}, \sqrt{14}, \sqrt[3]{30}, \sqrt{17}$       c.  $\sqrt[3]{100}, \sqrt[3]{30}, \sqrt{14}, \sqrt{17}, \sqrt[3]{75}$   
 b.  $\sqrt[3]{30}, \sqrt{14}, \sqrt{17}, \sqrt[3]{75}, \sqrt[3]{100}$       d.  $\sqrt{17}, \sqrt[3]{75}, \sqrt[3]{100}, \sqrt{14}, \sqrt[3]{30}$
- \_\_\_ 29. For which number will the fourth root be rational?  
 256, 27, -81, 40 000  
 a. 40 000      b. -81      c. 27      d. 256
- \_\_\_ 30. Which of these numbers is a natural number?  
 9, 0, -1,  $1.\bar{8}$   
 a. 9      b. 0      c.  $1.\bar{8}$       d. -1
- \_\_\_ 31. Which irrational number could be used to represent the hypotenuse of a right triangle with legs 7 cm and 8 cm?  
 a.  $\sqrt{113}$  cm      b.  $\sqrt{56}$  cm      c.  $\sqrt{30}$  cm      d.  $\sqrt{15}$  cm
- \_\_\_ 32. The area of a square is 64 square inches. What do you know about the square?  
 a. Both its side length and its perimeter are irrational.  
 b. Its side length is irrational and its perimeter is rational.  
 c. Its side length is rational and its perimeter is irrational.  
 d. Both its side length and its perimeter are rational.
- \_\_\_ 33. To which set(s) of numbers does  $-\sqrt{25}$  belong?

I	Natural
II	Integer
III	Rational
IV	Irrational

- a. II and III only      b. III only      c. I, II and III only      d. IV only

- \_\_\_ 34. Write  $\sqrt{108}$  in simplest form.  
a.  $3\sqrt{12}$       b.  $6\sqrt{3}$       c.  $36\sqrt{3}$       d.  $3\sqrt{6}$
- \_\_\_ 35. Write  $\sqrt[3]{80}$  in simplest form.  
a.  $10\sqrt[3]{2}$       b.  $2\sqrt[3]{10}$       c.  $8\sqrt[3]{10}$       d.  $4\sqrt[3]{5}$
- \_\_\_ 36. Write  $\sqrt[4]{405}$  in simplest form.  
a.  $3\sqrt[4]{5}$       b.  $81\sqrt[4]{5}$       c.  $9\sqrt[4]{5}$       d.  $5\sqrt[4]{3}$
- \_\_\_ 37. Write  $6\sqrt{5}$  as an entire radical.  
a.  $\sqrt{30}$       b.  $\sqrt{150}$       c.  $\sqrt{180}$       d.  $\sqrt{900}$
- \_\_\_ 38. Write  $3\sqrt[3]{4}$  as an entire radical.  
a.  $\sqrt[3]{108}$       b.  $\sqrt[3]{144}$       c.  $\sqrt[3]{36}$       d.  $\sqrt[3]{192}$
- \_\_\_ 39. Write  $3\sqrt[4]{2}$  as an entire radical.  
a.  $\sqrt[4]{48}$       b.  $\sqrt[4]{18}$       c.  $\sqrt[4]{162}$       d.  $\sqrt[4]{36}$
- \_\_\_ 40. Write  $\sqrt{98}$  in simplest form.  
a.  $7\sqrt{14}$       b.  $7\sqrt{2}$       c.  $2\sqrt{7}$       d.  $49\sqrt{2}$
- \_\_\_ 41. Write  $\sqrt[3]{1372}$  in simplest form.  
a.  $7\sqrt[3]{28}$       b.  $4\sqrt[3]{7}$       c.  $14\sqrt[3]{7}$       d.  $7\sqrt[3]{4}$
- \_\_\_ 42. Write  $\sqrt[4]{160}$  in simplest form.  
a.  $2\sqrt[4]{10}$       b.  $4\sqrt[4]{10}$       c.  $10\sqrt[4]{2}$       d.  $2\sqrt[4]{20}$
- \_\_\_ 43. Write  $7\sqrt{14}$  as an entire radical.  
a.  $\sqrt{9604}$       b.  $\sqrt{98}$       c.  $\sqrt{686}$       d.  $\sqrt{1372}$
- \_\_\_ 44. Write  $16\sqrt[3]{3}$  as an entire radical.  
a.  $\sqrt[3]{768}$       b.  $\sqrt[3]{12\,288}$       c.  $\sqrt[3]{2304}$       d.  $\sqrt[3]{432}$
- \_\_\_ 45. Write  $4\sqrt[5]{12}$  as an entire radical.  
a.  $\sqrt[5]{192}$       b.  $\sqrt[5]{2304}$       c.  $\sqrt[5]{995\,328}$       d.  $\sqrt[5]{12\,288}$
- \_\_\_ 46. A square has an area of 12 square inches. Determine the side length of the square as a radical in simplest form.  
a.  $4\sqrt{3}$  in.      b.  $2\sqrt{6}$  in.      c.  $3\sqrt{2}$  in.      d.  $2\sqrt{3}$  in.

- \_\_\_ 47. A cube has a volume of  $7290 \text{ cm}^3$ . Determine the edge length of the cube as a radical in simplest form.  
 a.  $9^3\sqrt{90} \text{ cm}$       b.  $9^3\sqrt{10} \text{ cm}$       c.  $81^3\sqrt{10} \text{ cm}$       d.  $10^3\sqrt{9} \text{ cm}$
- \_\_\_ 48. Order these numbers from greatest to least:  $2\sqrt{30}, 3\sqrt{3}, 2\sqrt{7}, 5\sqrt{5}, 2\sqrt{13}$   
 a.  $2\sqrt{13}, 2\sqrt{7}, 3\sqrt{3}, 5\sqrt{5}, 2\sqrt{30}$       c.  $5\sqrt{5}, 2\sqrt{30}, 3\sqrt{3}, 2\sqrt{13}, 2\sqrt{7}$   
 b.  $5\sqrt{5}, 2\sqrt{30}, 2\sqrt{13}, 2\sqrt{7}, 3\sqrt{3}$       d.  $3\sqrt{3}, 5\sqrt{5}, 2\sqrt{30}, 2\sqrt{13}, 2\sqrt{7}$
- \_\_\_ 49. Evaluate  $64^{\frac{1}{3}}$  without using a calculator.  
 a. 8      b. 4      c. -4      d.  $21\frac{1}{3}$
- \_\_\_ 50. Evaluate  $0.25^{\frac{1}{2}}$  without using a calculator.  
 a. 0.05      b. 0.125      c. 0.5      d. 0.29
- \_\_\_ 51. Evaluate  $(-27)^{\frac{1}{3}}$  without using a calculator.  
 a. -3      b. 3      c. -9      d. does not exist
- \_\_\_ 52. Evaluate  $\left(\frac{256}{625}\right)^{\frac{1}{4}}$  without using a calculator.  
 a.  $\frac{64}{625}$       b.  $\frac{4}{25}$       c.  $\frac{4}{5}$       d.  $\frac{16}{25}$
- \_\_\_ 53. Write  $42^{\frac{5}{4}}$  as a radical.  
 a.  $\sqrt[5]{42^4}$       b.  $(\sqrt[4]{42})^5$       c.  $125\sqrt[4]{42}$       d.  $(\sqrt[5]{42})^4$
- \_\_\_ 54. Write  $\sqrt{\left(\frac{3}{4}\right)^9}$  as a power.  
 a.  $\left(\frac{3}{4}\right)^{-\frac{9}{2}}$       b.  $\left(\frac{3}{4}\right)^{\frac{9}{2}}$       c.  $\left(\frac{4}{3}\right)^{-\frac{2}{9}}$       d.  $\left(\frac{3}{4}\right)^{\frac{2}{9}}$
- \_\_\_ 55. Evaluate  $0.16^{\frac{5}{2}}$ .  
 a. 0.4804      b. 0.1012      c. 0.0256      d. 0.010 24
- \_\_\_ 56. Evaluate  $(-243)^{0.6}$ .  
 a. -27      b. does not exist      c. 27      d. 9462.5994...
- \_\_\_ 57. Biologists use the formula  $b = 0.01m^{\frac{2}{3}}$  to estimate the brain mass,  $b$  kilograms, of a mammal with body mass  $m$  kilograms. Estimate the brain mass of a mammal with body mass 276 kg.

- a. About 4.24 kg  
 b. About 0.42 kg  
 c. About 9.13 kg  
 d. About 253.92 kg

- \_\_\_ 58. A cube has volume 1200 cubic inches. Write the edge length of the cube as a power.  
 a.  $\sqrt[3]{1200}$  in.      b.  $1200^{\frac{1}{3}}$  in.      c.  $1200^3$  in.      d.  $1200^{-3}$  in.

- \_\_\_ 59. Write  $7.5^{125}$  as a radical.  
 a.  $\sqrt[5]{7.5^4}$ , or  $(\sqrt[5]{7.5})^4$   
 b.  $\sqrt[4]{7.5^{\frac{1}{5}}}$ , or  $(\sqrt[4]{7.5})^{\frac{1}{5}}$   
 c.  $\sqrt[5]{\left(\frac{15}{2}\right)^4}$ , or  $\left(\sqrt[5]{\frac{15}{2}}\right)^4$   
 d.  $\sqrt[4]{7.5^5}$ , or  $(\sqrt[4]{7.5})^5$

- \_\_\_ 60. Evaluate  $\left(\frac{125}{8}\right)^{\frac{4}{3}}$ .  
 a.  $\frac{625}{4}$   
 b. 7.858 958...  
 c.  $\frac{625}{16}$   
 d.  $\frac{625}{8}$

- \_\_\_ 61. Evaluate  $3^{-2}$  without using a calculator.  
 a.  $\sqrt{3}$       b.  $\frac{1}{6}$       c.  $\frac{1}{9}$       d. 9

- \_\_\_ 62. Evaluate  $\left(\frac{2}{3}\right)^{-3}$ .  
 a.  $-\frac{27}{8}$       b.  $-\frac{8}{27}$       c.  $\frac{27}{8}$       d.  $-\frac{1}{6}$

- \_\_\_ 63. Evaluate  $64^{-\frac{4}{3}}$  without using a calculator.  
 a.  $\frac{1}{256}$       b.  $\frac{3}{256}$       c.  $-\frac{1}{256}$       d. -256

- \_\_\_ 64. Evaluate  $\left(\frac{625}{256}\right)^{-\frac{3}{4}}$  without using a calculator.  
 a.  $-\frac{64}{125}$       b.  $\frac{125}{64}$       c.  $-\frac{125}{64}$       d.  $\frac{64}{125}$

- \_\_\_ 65. Evaluate  $(-216)^{\frac{1}{3}}$  without using a calculator.  
 a.  $\frac{1}{36}$       b.  $\frac{1}{6}$       c.  $-\frac{1}{36}$       d.  $-\frac{1}{6}$

- \_\_\_ 66. Evaluate  $(0.81)^{-\frac{3}{2}}$  without using a calculator.

a.  $\frac{81}{100}$                       b.  $\frac{729}{1000}$                       c.  $\frac{100}{81}$                       d.  $\frac{1000}{729}$

\_\_\_ 67. Evaluate  $(0.64)^{-\frac{1}{2}}$  without using a calculator.

a.  $\frac{4}{5}$                       b.  $-\frac{4}{5}$                       c.  $\frac{1}{4}$                       d.  $\frac{5}{4}$

\_\_\_ 68. Which power with a negative exponent is equivalent to  $\frac{1}{125}$ ?

a.  $5^{-3}$                       b.  $-5^{-3}$                       c.  $3^{-5}$                       d.  $(-5)^3$

\_\_\_ 69. Which power with a negative exponent is equivalent to  $\frac{125}{512}$ ?

a.  $\left(\frac{8}{5}\right)^{-3}$                       b.  $\left(\frac{5}{8}\right)^{-2}$                       c.  $\left(\frac{8}{5}\right)^{-2}$                       d.  $\left(\frac{5}{8}\right)^{-3}$

\_\_\_ 70. Given that  $6^{10} = 60\,466\,176$ , what is  $6^{-10}$ ?

a.  $-6$                       b.  $-\frac{1}{6}$                       c.  $-\frac{1}{60\,466\,176}$                       d.  $\frac{1}{60\,466\,176}$

\_\_\_ 71. Simplify  $\frac{(3.5^{-6})(3.5^5)}{3.5^{-1}}$  by writing as a single power.

a.  $3.5^0$                       b.  $3.5^{-29}$                       c.  $3.5^0$                       d.  $3.5^{-2}$

\_\_\_ 72. Simplify  $m^{-2}n^6 \cdot m^3n^{-8}$ . Write using powers with positive exponents.

a.  $mn^2$                       b.  $\frac{m}{n^2}$                       c.  $\frac{n^{14}}{m^5}$                       d.  $\frac{n^2}{m}$

\_\_\_ 73. Simplify  $\frac{12p^3q^{-7}}{15pq^6}$ . Write using powers with positive exponents.

a.  $\frac{4p^3}{5q^{13}}$                       b.  $\frac{p^2}{3q^{13}}$                       c.  $\frac{4p^2}{5q}$                       d.  $\frac{4p^2}{5q^{13}}$

\_\_\_ 74. Simplify  $\left(64a^{12}b^{15}\right)^{\frac{2}{3}}$ .

a.  $16a^8b^{10}$                       b.  $16a^{18}b^{10}$                       c.  $64a^8b^{10}$                       d.  $16a^8b^{25}$

\_\_\_ 75. Simplify  $\left(7s^{\frac{7}{4}}t^{-\frac{5}{3}}\right)\left(-6s^{-\frac{11}{4}}t^{\frac{7}{3}}\right)$ .

a.  $-\frac{42t^{\frac{2}{3}}}{s}$                       b.  $-\frac{42}{st^4}$                       c.  $-42st^{\frac{2}{3}}$                       d.  $\frac{t^{\frac{2}{3}}}{42s}$

- \_\_\_ 76. Simplify  $\left(\frac{36x^4y^3}{4x^8y^{-1}}\right)^{\frac{1}{2}}$ .
- a.  $3x^2y^2$       b.  $\frac{3y^2}{x^2}$       c.  $\frac{3y}{x^2}$       d.  $\frac{3y^2}{x^6}$
- \_\_\_ 77. Simplify  $\left(\frac{5}{2}a^{-4}b^7\right)^{-3}$ .
- a.  $\frac{125b^{21}}{8a^{12}}$       b.  $\frac{8a^{12}}{125b^{21}}$       c.  $\frac{125a^{12}}{8b^{21}}$       d.  $\frac{8b^4}{125a^7}$
- \_\_\_ 78. Simplify  $\frac{(m^3n^{-3})^{-1}}{(m^{-2}n)^4}$ .
- a.  $\frac{m^5}{n^7}$       b.  $\frac{m^5}{n}$       c.  $\frac{m^{11}}{n}$       d.  $\frac{m^{11}}{n^7}$
- \_\_\_ 79. Simplify  $\left(\frac{w^{-15}y^{12}}{-64x^3}\right)^{-\frac{1}{3}}$ .
- a.  $-\frac{w^5x}{4y^4}$       b.  $\frac{4y^4}{w^5x}$       c.  $-\frac{y^4}{4w^5x}$       d.  $-\frac{4w^5x}{y^4}$
- \_\_\_ 80. Evaluate  $(a^{-4}b^{-3})(a^3b^{-4})$  for  $a = -1$  and  $b = 3$ .
- a.  $-\frac{1}{2187}$       b.  $\frac{1}{2187}$       c. 531 441      d. -2187
- \_\_\_ 81. Evaluate  $\frac{\left(a^{-\frac{7}{2}}b^{\frac{10}{3}}\right)}{(a^{-5}b^4)}$  for  $a = 4$  and  $b = -27$ .
- a.  $\frac{8}{9}$       b. 72      c. -72      d.  $-\frac{8}{9}$

### Short Answer

82. Simplify  $\frac{-3a^{-3}b^{-7}c^{-6}}{12a^{-6}b^{-3}c^{-3}}$ . Write using powers with positive exponents.

83. Simplify  $\left(\frac{3}{4}m^{-3}n^{-7}p^{-2}\right)^{-4}$ .

84. Evaluate  $(0.4)^{\frac{3}{2}} \cdot (0.4)^{\frac{1}{3}} \cdot (0.4)^{\frac{7}{6}}$ .

85. Evaluate  $\left[\left(-\frac{16}{19}\right)^{\frac{2}{5}} \cdot \left(-\frac{16}{19}\right)^{-\frac{2}{5}}\right]^7$ .

### Problem

86. Chris completes one lap of a go-cart track every 40 s. D'Arcy completes one lap of the same track every 50 s. Suppose Chris and D'Arcy cross the starting line at the same time. How many seconds will pass before they cross the starting line at the same time again? How many laps will Chris have completed in that time? How many laps will D'Arcy have completed in that time?

87. A math textbook has 6 chapters of equal length. The textbook is made by stitching together 40-page booklets. Determine the fewest number of pages the book can have.

88. A cube has surface area  $2646 \text{ m}^2$ . What is its volume?

89. A square has area  $40.0 \text{ cm}^2$ . Determine the perimeter of the square to the nearest tenth of a centimetre.

90. A square has an area of  $1134 \text{ m}^2$ . Determine the perimeter of the square. Write the answer as a radical in simplest form.

91. Harish simplified  $\sqrt[3]{1024}$  as shown:

$$\begin{aligned}\sqrt[3]{1024} &= \sqrt[3]{8} \cdot \sqrt[3]{128} \\ &= \sqrt[3]{8} \cdot \sqrt[3]{125} \cdot \sqrt[3]{3} \\ &= 2 \cdot 5 \cdot \sqrt[3]{3} \\ &= 10 \cdot \sqrt[3]{3}\end{aligned}$$

Identify the error Harish made, then write a correct solution.

92. The height,  $h$  metres, of a Douglas fir tree can be estimated from the formula  $h = 35d^{\frac{2}{3}}$ , where  $d$  metres is the diameter at the base. Use this formula to determine the approximate height of a Douglas fir tree with base diameter 4.1 m. Write the answer to the nearest metre.

93. A formula for the approximate surface area,  $SA$  square metres, of a person's body is

$$SA = 0.096m^{\frac{7}{10}},$$

where  $m$  is the person's mass, in kilograms.  
Calculate the surface area of a person with mass 75 kg.

94. Here is Tanisha's solution for evaluating a power:

$$\begin{aligned} \left(\frac{5}{4}\right)^{\frac{2}{7}} &= \left(\sqrt{\frac{5}{4}}\right)^7 \\ &= (1.1180\dots)^7 \\ &= 2.1837\dots \end{aligned}$$

Identify the errors Tanisha made. Write a correct solution.

95. Here is a student's solution for evaluating a power:

$$\begin{aligned} \left(\frac{8}{27}\right)^{-\frac{2}{3}} &= \left(-\frac{8}{27}\right)^{\frac{2}{3}} \\ &= \left(\sqrt{-\frac{8}{27}}\right)^2 \\ &= \left(-\frac{2}{3}\right)^2 \\ &= \frac{4}{9} \end{aligned}$$

Identify any errors in the solution. Write a correct solution.

