Section 6-5: Direct Variation

1. 080005a, A.N.5
Which table does *not* show an example of direct variation?

[A]

x	y
1	4
2	8
3	12
4	16

[B]

x	y
2	24
4	12
6	8
8	6

[C]

x	y
1	$\frac{1}{2}$
2	1
3	$\frac{3}{2}$
4	2

[D]

x	y
–4	–20
–3	–15
–2	–10
–1	–5

2. 010708a, P.I. A.N.5
Which equation represents the direct variation relationship of the equation $\frac{x}{y} = \frac{1}{2}$?

[A] $x = 2y$ [B] $y = 2x$

[C] $y = x + \frac{1}{2}$ [D] $y = 3x$

3. 010806a, P.I. A.N.5
If x varies directly as y, and $x = 8$ when $y = 24$, what is the value of x when $y = 6$?

[A] 3 [B] 4 [C] 1 [D] 2

4. 010431a, P.I. A.N.5
Julio's wages vary directly as the number of hours that he works. If his wages for 5 hours are $29.75, how much will he earn for 30 hours?

5. 060223a, P.I. A.M.1
If the instructions for cooking a turkey state "Roast turkey at 325° for 20 minutes per pound," how many hours will it take to roast a 20-pound turkey at 325°?

6. 010117a, P.I. A.M.1
In a molecule of water, there are two atoms of hydrogen and one atom of oxygen. How many atoms of hydrogen are in 28 molecules of water?

[A] 29 [B] 56 [C] 14 [D] 42

7. 080201a, P.I. A.M.2
On a map, 1 centimeter represents 40 kilometers. How many kilometers are represented by 8 centimeters?

[A] 280 [B] 48 [C] 320 [D] 5

8. 010818a, P.I. A.M.2
On a map, 1 inch represents 3 miles. How many miles long is a road that is $2\frac{1}{2}$ inches long on the map?

[A] $\frac{1}{2}$ [B] $7\frac{1}{2}$ [C] $5\frac{1}{2}$ [D] $6\frac{1}{2}$

9. 080223a, P.I. A.N.5
An image of a building in a photograph is 6 centimeters wide and 11 centimeters tall. If the image is similar to the actual building and the actual building is 174 meters wide, how tall is the actual building, in meters?

10. 080603a, P.I. A.N.5
Jordan and Missy are standing together in the schoolyard. Jordan, who is 6 feet tall, casts a shadow that is 54 inches long. At the same time, Missy casts a shadow that is 45 inches long. How tall is Missy?

[A] 86.4 in [B] 5 ft
[C] 5 ft 6 in [D] 38 in

11. 060124a, P.I. A.N.5
If a girl 1.2 meters tall casts a shadow 2 meters long, how many meters tall is a tree that casts a shadow 75 meters long at the same time?

12. 010222a, P.I. A.N.5
A 12-foot tree casts a 16-foot shadow. How many feet tall is a nearby tree that casts a 20-foot shadow at the same time?

[1] B

[2] B

[3] D

[4]
[2] \$178.50, and appropriate work is shown, such as solving a proportion, using a table, or trial and error with at least three trials and appropriate checks.
[1] Appropriate work is shown, but one computational error is made.
or [1] An appropriate proportion is set up, but no solution or an incorrect solution is found.
or [1] An incorrect proportion is set up, but an appropriate solution is found.
or [1] \$178.50, but no work is shown or fewer than three trials with appropriate checks are shown.
[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

[5]
[2] $6\frac{2}{3}$ or 6 hr 40 min or $6.6\overline{6}$ or an equivalent answer, and appropriate work is shown.
[1] 400 min, but the answer is not converted into hours.
or [1] Appropriate work is shown, but one computational error is made.
or [1] Appropriate work is shown, but the answer is rounded to the nearest hour.
or [1] $6\frac{2}{3}$ or 6 hr 40 min or $6.6\overline{6}$ or an equivalent answer, but no work is shown.
[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

[6] B

[7] C

[8] B

[9]
[2] 319, and appropriate work is shown.
[1] A correct proportion is shown, but no solution or an incorrect solution is found.
or [1] An incorrect proportion of equal difficulty is solved appropriately.
or [1] Appropriate work is shown, but one computational error is made.
or [1] 319, but no work is shown.
[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

[10] B

[11]
[2] 45, and appropriate work is shown, such as a diagram or $\frac{1.2}{2} = \frac{x}{75}$.
[1] Appropriate work is shown, but no answer or an incorrect answer is found.
or [1] 45, but no work is shown.
[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

[12]
[2] 15, and any equivalent proportion, equation, or fraction conversion is shown, such as $\frac{12}{16} = \frac{x}{20}$.
[1] An appropriate proportion, equation, or fraction conversion is shown, but one computational or conceptual error is made.
or [1] An incorrect proportion, equation, or fraction conversion is shown, but an appropriate answer is found for the incorrect proportion.
or [1] 15, but no work is shown.
[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.