Name _____

2-2B **Lesson Master**

SKILLS Objective A

In 1–6, translate into a variation equation.

1. *P* varies inversely as *d*. _____

2. *e* is inversely proportional to the cube of *g*. _____

3. *m* varies inversely with n^2. _____

4. The number *n* of baseballs that can fit into a carton is inversely proportional to the cube of a baseball's radius *r*. _____

5. The number of hours *h* it takes to travel a given distance varies inversely with the speed *s* of a car. _____

6. The weight *W* of a body varies inversely with the square of its distance *d* from the center of Earth. _____

SKILLS Objective B

7. *a* is inversely proportional to *b*. If $a = \frac{1}{4}$ when $b = 2$, find *a* when $b = \frac{1}{2}$. _____

8. *y* varies inversely as the square of *v*. If $y = 4$ when $v = -4$, find *y* when $v = 8$. _____

9. *m* varies inversely as the cube of *n*. If $m = -2$ when $n = -5$, find *m* when $n = -2.5$. _____

USES Objective F

Fill in the Blanks In 10–15, fill in the blanks with *directly*, *inversely*, or *neither*.

10. The weight of a magazine varies _____ as the number of pages it contains.

11. The speed of a horse varies _____ as the time it takes the horse to travel a given distance.

12. The temperature in Edmonton varies _____ with the number of the month of the year.

13. The number of tiles it takes to tile a floor varies

_____ as the area of the tiles.

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14. The distance needed to stop a moving vehicle varies

    _____ as the speed of the vehicle.

15. The amount of sunlight at a given time varies

    _____ as the time of day.

USES Objective G

16. The number n of square tiles needed to tile a wall varies inversely as the
    square of the length s of a side of each tile. If it takes 180 tiles with 6-in.
    sides to tile a wall, how many tiles with 9-in. sides will it take to tile the
    same wall?   _____

17. The number n of rubber balls that fit into a box varies inversely as
    the cube of the diameter d of each ball. A box that holds 12 balls with
    diameter 15 cm holds how many balls with diameter 5 cm?   _____

18. The force needed to keep a car on the road varies inversely as the
    radius of the curve. It requires 1286 Newtons of force to keep a 1000-kg
    car traveling at 50 km/hr from skidding on a curve of radius 150 meters.
    How much force is necessary to keep the same car traveling at the
    same speed from skidding on a curve of radius 750 meters?   _____

19. The number of spans of steel needed to construct a bridge over a river
    varies inversely as the length of each span. If 10 spans are used, each
    span is 18 ft long. How long would each span be if 12 spans were used?   _____

20. The resistance in a certain electrical circuit varies inversely as the
    square of the current through it. The resistance of the circuit is 10
    ohms when the current is 15 amps. What is the resistance in the circuit
    when the current is 20 amps?   _____

21. It takes 4 workers 6 hours to pick the strawberries in a field.

    a. How many hours would it take 6 workers to pick the
       strawberries in the same field?   _____

    b. What is the constant of variation, and what does it represent?

    _____

    _____